The Sizewell C Project

6.3 Ch Volume 2 Main Development Site
Chapter 3 Description of Construction
Appendix 3D of the Environmental Statement: Construction Method Statement

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CONTENTS

TABLES

PLATES

FIGURES

Environmental Statement Volume 2 Chapter 3 (Doc Ref. 6.3) [APP – 186]

Figure 3.13: Sizewell drain and main platform typical cross-section

Figure 3.14: Defined Harbour Area

First Environmental Statement Addendum Volume 2 (Doc Ref. 6.14) [AS-190 and AS-191]

Figure 2.2.2: Construction Parameter Plan (superseded by Fourth Environmental Statement Addendum, Figure 3.3)

Figure 2.2.14: Indicative Sketch of Flood Mitigation Area and Wet Woodland Habitat

Figure 2.2.21: Temporary Sea Defence Cross Section

Figure 2.2.22: Permanent Sea Defence Cross Section

Figure 2.2.23: Northern Mound Cross Section

Figure 2.2.33: Illustrative Construction Masterplan (superseded by Fourth Environmental Statement Addendum, Figure 3.4)

Figure 2.2.34: Construction Phase 1 (superseded by Fourth Environmental Statement Addendum, Figure 3.5)

Figure 2.2.35: Construction Phase 2 (superseded by Fourth Environmental Statement Addendum, Figure 3.6)

Figure 2.2.36: Construction Phase 3 (superseded by Fourth Environmental Statement Addendum, Figure 3.7)

Figure 2.2.37: Construction Phase 4

Figure 2.2.38: Construction Phase 5

Figure 2.2.39: Landscape retention plan (superseded by Second Environmental Statement Addendum, Figure 2.2.4)

Figure 2.2.40: Site clearance plan (superseded by Second Environmental Statement Figures Addendum, Figure 2.2.5)

Updated Main Development Site Environmental Statement and First Environmental Statement Addendum Figures (Doc Ref. 6.14(B))

Figure 3.1: Construction parameter plan (superseded by Fourth Environmental Statement Addendum, Figure 3.3)

Second Environmental Statement Addendum Figures (Doc Ref. 6.16 Ch)

Figure 2.2.1: Proposed Change 16 Design Changes

Figure 2.2.3: Illustrative Construction Masterplan (superseded by Fourth Environmental Statement Addendum, Figure 3.4)

Figure 2.2.4: Landscape Retention Plan

Figure 2.2.5: Site Clearance Plans

Fourth Environmental Statement Addendum Figures (Doc Ref. 6.16 Ch)

Figure 3.1: Proposed Change 19 Proposed Temporary Desalination Plant, Initial Location

Figure 3.2: Proposed Change 19 Proposed Temporary Desalination Plant, Subsequent Location

Figure 3.3: Construction Parameter Plan

Figure 3.4: Construction Masterplan

Figure 3.5: Phase 1: Site establishment and preparation for earthworks (Years 1 – 2)

Figure 3.6: Phase 2: Main earthworks (Years 1 – 4)

Figure 3.7: Phase 3: Main civils (Years 3 – 9)

Unless specifically stated, where a document reference is provided, it refers to the document series. Refer to the **Navigation Document** (Doc Ref. 1.3) for the latest revision number.

1 INTRODUCTION

1.1 Purpose

1.1.1 This Construction Method Statement (CMS) sets out the programme and methodology for the construction of the main development site.

1.1.2 The CMS has been used as the basis of the assessment reported in the Environmental Statement.

1.1.3 Construction works on the main development site would be controlled as follows:

- **Construction Method Statement**: secured via a requirement in Schedule 2 of the **Draft Development Consent Order** (**Draft DCO**) (Doc Ref. 3.1). The primary mitigation within this document includes the maximum height of temporary buildings, structures, plant and earthworks across the main development site, as defined in **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). This document would also ensure that the sequence of construction phase mitigation comes forward in a manner that is consistent with the assessment.

- **Code of Construction Practice** (**CoCP**) (Doc Ref. 8.11): secured via a requirement in Schedule 2 of the **Draft DCO** (Doc Ref. 3.1).

- **Construction Traffic Management Plan** (**CTMP**) (Doc Ref. 8.7), **Traffic Incident Management Plan** (**TIMP**) (Doc Ref. 8.6) and **Construction Worker Travel Plan** (**CWTP**) (Doc Ref. 8.8). These documents are all secured via the **Deed of Obligation** (Doc Ref. 8.17).

1.1.4 The main development site comprises five components, which are described below, and illustrated in **Figure 1.2** of **Chapter 1** of the Environmental Statement:

- Main platform: the area that would become the power station itself.

- Sizewell B relocated facilities and National Grid land: the area that certain Sizewell B facilities would be moved to in order to release existing Sizewell B land for the proposed development, and the area required for the National Grid transmission network.

- Offshore works area: the area where offshore cooling water infrastructure and other marine works would be located.

- Temporary construction area (TCA): the area located primarily to the north and west of the proposed Sizewell Marshes Site of Special Scientific Interest (SSSI) crossing, which would be used to support construction activity on the main platform, including the accommodation campus.

- Land to the East of Eastlands Industrial Estate (LEEIE): the area to the north of Sizewell Halt and King George's Avenue, which would be used to support construction on the main platform and TCA.

1.1.5 This CMS also describes construction activities on the following off-site facilities, which for the purposes of the **ES** are considered to form part of the main development site. Development associated with these sites is secured by Schedule 1 of the **Draft DCO** and associated **Work Plans** (Doc Ref. 2.3):

- Marsh harrier habitat improvement area (Westleton): land west of Westleton which could be used to mitigate potential disturbance effects on marsh harriers from the temporary loss of foraging habitat during construction, if required.

- Fen meadow compensation sites: the areas to the south of Benhall, to the north of Pakenham and to the east of Halesworth, which would be used to compensate for the loss of fen meadow from Sizewell Marshes SSSI. This would also be retained as a permanent development as set out in **Appendix 2.2.A Updated Description of Development** (Doc Ref. 6.14).

- Leiston off-site sports facilities: the area to the south of Alde Valley Academy, and east of Leiston leisure centre, which would be used during the construction stage as a shared outdoor sports facility for Alde Valley Academy, the local community and construction workers. This would also be retained as a permanent development as set out in **Appendix 2.2.A Updated Description of Development** (Doc Ref. 6.14).

1.1.6 The remainder of this document is structured as follows:

- Construction and environmental management: which explains where measures and controls that SZC Co. will require its contractors to adopt during construction will be secured.

- Project-wide assumptions: which set out the assumed construction programme; traffic movements; working hours and workforce profile for the Sizewell C Project as a whole. Other volumes of the **ES** and

chapters of the **First ES Addendum** identify site-specific assumptions relating to these topics, as relevant for associated development sites.

- Construction method by sub-area: sets out the working methods for construction activities on the main development site, focusing on activities that are relevant for the assessment of environmental effects.

- Site-wide construction method: sets out the approach to managing construction waste, installation and connectivity of utilities, drainage, lighting, landscaping and rights of way.

1.2 Construction and environmental management

1.2.1 The **CoCP** (Doc Ref. 8.11) sets out the measures and controls that SZC Co. will require its contractors to adopt during construction and removal and reinstatement phases of the proposed development, where appropriate. In summary, the **CoCP** sets out the following:

- General construction environmental management arrangements, including details of the environmental management system.

- How construction environmental management arrangements will be implemented, reviewed and monitored.

- Community and stakeholder engagement arrangements that will be implemented during the construction period.

- General measures relating to topics such as training and competence, construction consents, workforce code of conduct, working hours and construction site layout.

- Measures relating to waste management and resource use, land quality, ecology, landscape, cultural heritage, noise and vibration, air quality, water environment, traffic and transport, amenity and recreation, carbon emissions and emergency arrangements.

- Any site-specific controls to be applied at any of the Sizewell C Project sites.

1.2.2 The management measures and controls included in the **CoCP** have been identified through the EIA process and will minimise impacts on the environment and human receptors, as far as reasonably practicable.

1.2.3 The **CTMP** (Doc Ref. 8.7), **CWTP** (Doc Ref. 8.8), and **TIMP** (Doc Ref. 8.6), include a series of measures to reduce the impact of construction vehicle

traffic upon the highway network and for the sustainable travel of construction workforce to the Sizewell C Project sites.

1.2.4 The appointed contractors will be required to undertake the construction works in accordance with the arrangements set out within the updated **CoCP**, **CTMP**, **CWTP** and **TIMP**. Any work undertaken by a contractor would be reviewed and approved by relevant SZC Co. personnel prior to the work commencing.

1.2.5 In addition, there may be a need to apply for additional permits, consents or licences prior to and during the construction works (such as land drainage consents, environmental permits or protected species licences, if required). As the programme of works and design are progressed, these permissions will be identified and scheduled in a timely manner to enable determination by the appropriate regulatory body. Any requirements of a granted permission will be provided to contractors undertaking the work.

2 PROJECT-WIDE ASSUMPTIONS

2.1 Construction programme

2.1.1 This section provides an overview of the assumed Sizewell C construction programme and summarises the main activities throughout the different phases of construction. Details on the working methods associated with each phase are provided later in this document.

2.1.2 Construction would commence following the grant of the Sizewell C Development Consent Order (assumed 2022), and is likely to be completed approximately nine to twelve years later (Years 9 to 12). The assumed construction programme is set out in **Plate 2.1**.

2.1.3 For the purposes of analysing traffic impact during the construction phase, the overall peak of construction activity is assumed to occur in 2028 (the 'peak year') and the peak of construction during the "early years" (prior to completion of the associated development) is assumed to occur in 2023.

2.1.4 Construction would be undertaken in five main phases:

- Phase 1: Site establishment and preparation for earthworks, as provided in **Figure 3.5** of of the **Fourth ES Addendum**.
- Phase 2: Main earthworks, as provided in **Figure 3.6** of of the **Fourth ES Addendum**.

- Phase 3: Main civils, as provided in **Figure 3.7** of the **Fourth ES Addendum**.
- Phase 4: Mechanical and electrical installation, as provided in **Figure 2.2.37** of **Volume 2** of the **First ES Addendum**.
- Phase 5: Commissioning and land restoration, as provided in **Figure 2.2.38** of **Volume 2** of the **First ES Addendum**.

2.1.5 It has been assumed that works relating to the relocation of certain Sizewell B facilities would begin approximately two years prior to the start of Phase 1, pursuant to planning permission reference DC/19/1637/FUL or DC/20/4646/FUL issued by East Suffolk Council. These works are referred to later in this document as Phase 0.

2.1.6 For the purposes of assessment, commissioning undertaken at Phase 5 is assumed to include both systems testing and other integrated commissioning works.

Plate 2.1: Assumed construction programme

Assumed Year *			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Key milestone dates	Start	End	Yr -1	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12
Assumed Final Investment Decision (FID)		Q3/4-22		FID												
Main Development Site - Construction Phases **																
Sizewell B relocated facilities works ***	Q1-21	Q4-24														
Pre-commencement and enabling works	Q2-22	Q2-23														
Phase 1: Site Establishment and preparation for earthworks	Q1-23	Q1-25													Unit 1 operational	
Phase 2: Bulk earthworks	Q1-25	Q3-27														
Phase 3: Main civils	Q3-25	Q2-32														Unit 2 operational
Phase 4: Mechanical and electrical installation	Q1-26	Q4-33														
Phase 5: Commissioning and land restoration	Q1-30	Q4-34														
Main Development Site: Mitigation																
Permanent Beach Landing Facility	Q3-23	Q2-25														
Temporary Beach Landing Facility	Q3-23	Q2-25														
Accommodation Campus	Q3-23	Q3-25														
Caravan Park	Q4-22	Q4-23														
Lover's Lane works	Q3-22	Q4-23														
Green Rail Route	Q4-22	Q1-24														
Branch Line/Other Rail Improvements	Q2-23	Q4-23														Onwards
Fen meadow compensation areas (Initial Habitat Establishment)	Q2-22	Q2-23														
Marsh harrier habitat improvement area	Q2-22	Q2-23														
Offsite Associated Development																
Pre-commencement and enabling works	Q2-22	Q2-23														
Friday Street Roundabout	Q1-23	Q2-23														Onwards
Two Village Bypass	Q1-23	Q4-24														Onwards
Sizewell Link Road	Q1-23	Q4-24														Onwards
Yoxford A12 Junction	Q2-23	Q2-24														Onwards
Freight Management Facility	Q2-23	Q2-24														
Northern Park and Ride	Q2-23	Q3-24														
Southern Park and Ride	Q2-23	Q3-24														
A12/A144 Junction	Q1-23	Q4-23														Onwards
Other Highway Improvements	Q4-22	Q4-23														Onwards

Construction
Operational
Habitat establishment works
Removal
Reinstatement

Notes:

* Dates noted above assume DCO being granted April 2022 and free of legal challenge

** Please note that the Construction phases are shown for illustrative purposes only. The sequence of construction works, as set out in the Construction Method Statement, are secured by Requirement 8 of Schedule 2 of the Draft Order.

*** It has been assumed that pre-FID works would be undertaken pursuant to planning permission reference DC/19/1637/FUL & DC/20/4646/FUL issued by East Suffolk Council

a) Construction workforce

2.1.7 Workforce numbers have been estimated based on the workforce deployed to date at Flamanville 3 and Hinkley Point C, and the total estimated workforce hours to complete construction. Experience of construction of other multiple reactor unit plants in France has been factored in to convert the single-unit Flamanville workforce numbers required for the twin-unit power station at Sizewell C.

2.1.8 The Sizewell C Project's transport and socio-economic effects are influenced by two core assumptions about the construction workforce:

- The number of workers required over time, by skill/role, and the extent to which they can be sourced from existing labour markets (home-based) or would temporarily move to the area (non-home-based).

- The spatial distribution of workers (by accommodation type) across the area.

2.1.9 For the purposes of the Environmental Impact Assessment, during the peak year a total of 7,900 construction workers are assumed to be working on the nuclear power station at the main development site at any one time and 580 workers are assumed to be working at the accommodation campus and caravan park. A further 20 staff are assumed to be working at the freight management facility. This is a precautionary approach to ensure that appropriate mitigation can be applied.

2.1.10 The **Accommodation Strategy** (Doc Ref. 8.10) addresses the capability of existing local accommodation to house construction workers and defines the need for and size of the accommodation campus for workers, resulting in an on-site campus at Sizewell for up to 2,400 persons, as described later in this section.

2.1.11 The remaining workers would be distributed around the local area and the geographical distribution is predicted using a gravity model in the **Consolidated Transport Assessment** (Doc Ref. 8.5). This assessment has identified the need for park and ride facilities as part of an integrated approach to worker transport as described in **Chapter 2** of both **Volume 3** (Doc Ref. 6.4) and **Volume 4** (Doc Ref. 6.5) of the **ES**.

b) Working patterns

2.1.12 The majority of workers are expected to be working on either an early shift or a late shift. Most of the remaining employees would work to office hours. Shift patterns are set out in **Table 2.1**.

Table 2.1: Construction shift patterns.

Shift	Start Time	End Time
Early shift.	06:00–08:30	14:00–18:30
Late shift.	13:30–15:00	22:00–00:00
Night shift.	20:30–22:00	06:00–08:00
Office shift.	07:30–09:00	17:30–19:00

2.1.13 The early and late shifts as well as the night shift, are likely to operate on a four to six-week cycle. Within these cycles, there would be longer weekends that result in the earlier departure of staff on Thursdays or Fridays, generally between 14:00 and 16:00.

2.1.14 At weekends, it is anticipated that different working patterns would apply. There are two likely work patterns that may be used:

- Some construction staff may work on Saturday mornings, with no shift on a Sunday.
- Others may work an alternating pattern, which may operate on a four-week cycle comprising 12 working days (Monday to Sunday plus Monday to Friday) followed by a two-day non-working weekend (Saturday and Sunday), followed by 11 working days (Monday to Sunday plus Monday to Thursday), followed by a three-day non-working weekend (Friday to Sunday).

2.1.15 There would be some occasions and activities which require continuity of working (e.g. fixing of concrete formwork, large concrete pours, erection of steelwork and marine tunnelling activities) where the working pattern may differ from that described above. It is anticipated that these would involve a reduced proportion of the workforce. Where possible, the accommodation campus would be prioritised for workers more likely to undertake these activities.

2.1.16 The night shift would generally be a maintenance and logistics support shift, involving activities such as:

- unloading and storing the morning's earliest heavy goods vehicle (HGV) arrivals;
- unloading and storing of freight from rail deliveries overnight;
- unloading and storing freight from marine deliveries;
- pre-placement of materials for the subsequent shifts;
- repositioning of scaffolding;
- essential plant maintenance and repair;
- dewatering operations;
- refuelling; and
- radiography of welds.

2.1.17 In addition, where continuity of work is essential, the night shift would include:

- tunnelling activities, including removal of excavated material;
- fixing of concrete formwork and reinforcing bars;
- welding of the reactor containment liner; and
- continuation of large concrete pours (in excess of 18 hours).

c) Construction materials

2.1.18 The Sizewell C Project would require around 12.1 million tonnes of material to be imported to the main development site during the construction period.

2.1.19 New rail infrastructure would be constructed that would facilitate the import of material by rail on trains which are assumed to be capable of each carrying up to 1,250 tonnes of construction material. Further details on the frequency of trains are set out below.

2.1.20 A temporary Beach Landing Facility (BLF) is proposed, which is expected to allow around 1,275,000 tonnes of construction material per year to be imported by sea. Further details on its design and construction are set out later in this document.

2.1.21 The expected proportion of material imported by mode is set out in **Table 2.2**. These figures exclude equipment and abnormal loads delivered by sea using the permanent BLF.

Table 2.2: Expected proportion of material by mode.

Mode	Imported material (%)
Road	40%
Rail	30% - 50%
Sea	10% - 30%
Total	**100%**

2.1.22 The expected breakdown of imported material by main material type is set out in **Table 2.3**.

Table 2.3: Breakdown of expected import material by type.

Material Type	Weight (Million Tonnes(%))*
Concrete	4.8 (40%)

Backfill	3.3 (27%)
Steel	1.0 (8%)
Bitumen	1.0 (8%)
Other	2.0 (17%)
Total	12.1 (100%)

* Note: the quantities of material imports are current estimates and are likely to change, as detailed design and construction methodologies are confirmed.

2.1.23 Further details on materials management are set out in **Appendix 3B** of Volume 2 and in the **Materials Management Strategy Update** (Doc ref. 6.14).

2.1.24 Sufficient supply is likely to exist within the UK to source construction materials, with some very specialist and specific materials needing to be sourced from elsewhere in Europe. Due to the strict requirements for nuclear standard concrete, the approach taken for sourcing concrete supply is likely to replicate that used for Hinkley Point C, which sourced most material from within the UK. **Chapter 8** of the **ES** presents an assessment of the likely significant effects as a result of resource use.

d) Construction freight movements

i. Early years

2.1.25 During the early years of construction, the workforce would be smaller than at peak construction but the associated developments and other mitigation measures would not yet be in place. On a typical day during the early years, a total of 600 two-way HGV movements are expected (i.e. 300 HGVs in each direction).

2.1.26 Proposed HGV and bus routes to and from the main development site are shown on **Figure 3.7** of **Volume 2 Chapter 3** of the **ES** and **Figure 3.12** of **Volume 2 Chapter 3** of the **ES**.

2.1.27 Once the work on the Saxmundham to Leiston branch line and at LEEIE has been completed, up to two return freight trains per day would operate in each direction during the early years of construction. This would include overnight movements along the East Suffolk line to and from the hold points on the Saxmundham to Leiston branch line, and during the day movements along the Saxmundham to Leiston branch line from the hold points to and from the LEEIE.

2.1.28 Once construction of the rail extension route into the temporary construction area is complete, this would provide capacity for up to five return freight trains to operate in each direction.

2.1.29 However, for the purposes of assessment, a total of four train deliveries (eight train movements) per day is assumed for the majority of the construction phase. For a period of approximately two years during the construction phase when demand for bulk material imports is at its highest, a fifth train delivery (10 train movements in total) per day is assumed.

2.1.30 These trains would predominantly operate overnight, after 23:00, to make use of available rail capacity at these times.

2.1.31 For the purposes of assessment, the reasonable worst-case scenario as relevant to each environmental topic has been assumed. These comprise variously:

- Up to eight train movements take place overnight (for noise assessment purposes); or
- All train movements take place overnight, except for up to three daytime movements per day (for the purposes of the transport assessment).

2.1.32 For assessment purposes, it is also assumed that trains would run six days per week, including Sunday night / Monday morning.

2.1.33 Once construction of the permanent BLF is complete, annual campaign periods (approximately April to October) are expected for the BLF during construction. It is assumed that approximately 100 beach landings per annual campaign could be achieved and that this rate of AIL delivery would occur for approximately four years.

2.1.34 Once construction of the temporary BLF is complete, up to approximately 400 deliveries between April and October (inclusive) and up to approximately 200 additional deliveries are assumed for the remainder of the year, for each year of operation (approximately eight years in total).

2.1.35 The operational constraints of the weather and the tide normally limit the marine campaign to a 7-month period annually between April and October. Based on these 29 weeks of operation each year, with two vessels of 4,500 tonnes offloading over each high tide there is a theoretical capacity of 1,827,000 tonnes. Allowing for efficiency, adverse weather, tidal conditions and breakdowns, the current assessment is that 70% utilisation is the upper limit that could be achieved, which would allow around 1,275,000 tonnes per year to be imported.

2.1.36 The potential for use in the remainder of the year is proposed but principally for resilience in the freight management strategy. There are logistical difficulties in being able to reliably deliver infrequently when weather conditions allow and no extra capacity from potential movements out of the summer campaign period has been assumed or relied on, although the potential effects of operating the temporary BLF throughout the year have been assessed.

ii. Peak year

2.1.37 During peak construction of the main development site, the permanent BLF, temporary BLF and the rail extension route would be in place to remove many heavy and oversized loads from the road network. The residual number of HGV movements is expected to be:

- 500 two-way HGV movements on a typical day (i.e. 250 HGVs in each direction); and
- 700 two-way HGV movements on the busiest day (i.e. 350 HGVs in each direction).

2.1.38 Further details on traffic movement during the construction period are set out in Chapter 4 of the **Consolidated Transport Assessment** (Doc Ref 8.5).

2.1.39 Proposed HGV routes to and from the main development site during peak construction are shown on **Figure 3.7** of **Volume 2 Chapter 3** of the **ES**.

iii. Competent Harbour Authority

2.1.40 During the construction period, a Competent Harbour Authority will be in place to facilitate the safe delivery of construction materials to site and ensure the safe construction of the offshore elements.

2.1.41 A Harbour Master will manage navigation within a defined Harbour Area, bounded by the coordinates presented in **Table 2.4** and shown in **Figure 3.14** of **Volume 2 Chapter 3** of the **ES**.

Table 2.4: Coordinates of Harbour Area.

Latitude	Longitude
52°14’0’’	1° 37’ 37’’
52°14’0’’	1° 41’ 0’’
52° 12’ 0’’	1° 41’ 0’’

Latitude	Longitude
52° 12’ 0’’	1° 37’ 20’’

2.1.42 The Harbour Area has been defined by the need to include the full extent of the offshore works including the cooling water intake and outfalls and the use of discrete lines of latitude and longitude have been chosen as these are easier for mariners to use in the absence of any suitable landmarks.

2.1.43 The Harbour Authority would be in place throughout the construction period but surrendered at the end of the construction period. Although the permanent BLF would remain in place throughout the operation period for occasional delivery of AILs during maintenance periods, deliveries would be infrequent and not require the Harbour Authority to be in place.

2.1.44 Further information on the need for a Competent Harbour Authority is provided within **Regulation 6 Additional Information** (Doc Ref. 7.2) and an assessment of risks to navigation is provided in **Chapter 24** of **Volume 2.**

3 TYPICAL CONSTRUCTION ACTIVITIES BY SUB-AREA

3.1 Main platform

3.1.1 The main platform refers to the area within which the main construction activity would occur and where the majority of permanent plant and buildings would be constructed, together with the foreshore works. It is bounded by Sizewell B power station to the south, Sizewell Marshes SSSI to the west and north, and a gravel beach to the east with the North Sea beyond, as shown on **Figure 1.2** of **Chapter 1** of **Volume 2** of the **ES** (Doc Ref. 6.3).

3.1.2 **Table 3.1** sets out the maximum heights for construction activities on the main platform. The table should be read in conjunction with **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). Existing ground levels are shown on **Figure 1.8** of **Chapter 1** of **Volume 2** of the **ES**.

3.1.3 The construction plant schedule in **Appendix 3A** of **Volume 2** of the **ES** presents the significant noise sources assumed during each main phase of construction.

3.1.4 Further details are set out by phase below and illustrated in **Volume 2**, **Figure 2.2.34** of the **First ES Addendum** to **Volume 2**, **Figure 2.2.38** of the **First ES Addendum**.

Table 3.1: Construction zones and height parameter – main platform

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone C1: Construction of the main platform.	Working envelope for main platform construction requirements. Structures to include: temporary buildings, tower cranes, mobile cranes and other specialised lifting equipment.	160 metres (m) above ordnance datum (AoD).
Zone C1: Construction of the main platform – exceptional circumstances.	Working envelope for exceptional structures that are required for the lifting and installation of reactor domes and other time limited activities that require specialised cranes of lifting equipment that go above the height parameters set out in Construction Zone 1. Typically these would include large mobile cranes for installation of the dome associated with the two reactor units.	250m AoD.
Zone C16: Construction of the permanent beach landing facility	Working envelope for permanent beach landing facility construction requirements.	25m AoD.
Zone C16: Construction of the permanent beach landing facility – exceptional circumstances	Working envelope for permanent beach landing facility construction requirements. Structures to include temporary cranes and other specialised equipment.	60m AoD.
Zone C20: Construction of the temporary beach landing facility	Working envelope for temporary beach landing facility construction requirements.	25m AoD.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone C20: Construction of the temporary beach landing facility	Working envelope for temporary beach landing facility construction requirements. Structures to include temporary cranes and other specialised equipment.	60m AoD.
Zone C21: Marine tunnelling and shafts	Working envelope for marine tunnelling and shafts. Structures to include temporary cranes and other specialised equipment.	40m AoD.
Zone C21: Marine tunnelling and shafts – exceptional circumstances	Working envelope for marine tunnelling and shafts. Structures to include taller cranes and other specialised equipment.	70m AoD.
Hard and soft coastal defence feature	Working envelope for construction requirements.	15m AOD
Hard and soft coastal defence feature – exceptional circumstances	Working envelope for construction requirements. Structures to include temporary cranes and other specialised equipment.	35m AOD

a) Main platform: Phase 1

i. *Main platform:* Establishment of construction area

3.1.5 Enabling works would take place prior to formal site establishment, including archaeological and protected species mitigation works (translocation of species such as reptiles and water voles, and related local habitat removal).

3.1.6 Construction work would then begin by securing the site through installation of security fencing and site clearance, demolition of above and below ground structures and buildings and diversion of existing utilities as necessary. Areas of vegetation clearance and retention are shown on **Figures 2.2.4** and **2.2.5** of **Volume 2** of the **Second ES Addendum.**

3.1.7 Acoustic fences and earth bunds would be used, where necessary, to attenuate noise levels. Earth bunds would be grassed/seeded.

3.1.8 Contractor compounds would be erected including welfare and office accommodation. Storage and handling areas, facilities for and equipment for processing of excavated materials and other temporary facilities, plant, cranes and machinery would also be provided.

3.1.9 Temporary buildings would use modular (pre-fabricated) buildings on concrete foundations, as far as practicable.

ii. *Main platform:* Desalination plant

3.1.10 Construction of the desalination plant would take approximately 4-6 months and can only commence once once site clearance works are complete on the site of the future power station (the main platform). It is therefore assumed that for the first 9-12 months of construction, potable water will need to be imported by road via water tanker truck. The number of tanker deliveries is likely to rise gradually during this period to approximately 40 deliveries per day and will be delivered within the HGV limits set out above.

3.1.11 The modular desalination plant would initially be capable of producing up to approximately 2,600m^3 of potable water per day in order to meet the water demand during the early works. If required, its capacity would subsequently be increased to 4,000m^3 potable water per day to meet the peak water demand during the main construction phase.

3.1.12 The desalination process comprises the following core components:

- Onshore desalination and associated equipment.
- Seawater intake pipe and associated headworks.
- Brine water outfall pipe and associated diffusers.

Onshore desalination and associated equipment

3.1.13 The assumed technology is Sea Water Reverse Osmosis (SWRO) desalination. The plant would consist of up to approximately nine containerised plant modules with associated chlorination units, equipment and other tanks. The plant is assumed to operate up to 24 hours per day.

3.1.14 Plant would be delivered by road and is unlikely to comprise any Abnormal Indivisible Loads (AILs).

3.1.15 The plant would initially be located in the Main Platform area (see **Figure 3.1** (Fourth ES Addendum). The height of the equipment is assumed to be up to 10m above ground level. Mobile crane units and a directional drilling rig would be required to install plant and drill the tunnels. The rig is assumed to be temporarily sheet-piled into the ground for stability. It is assumed that the desalination plant is subsequently relocated to the Temporary Construction Area in Phase 2, (see **Figure 3.2** (Fourth ES Addendum). The capacity of the desalination plant would be increased there to approximately 4,000m^3 per day at this location, if required.

3.1.16 On-site diesel generators are assumed to be necessary to provide up to approximately 1.6 MVA of electricity for the plant located in the Main Platform. Generators will be containerised or within noise hoarding or similar. Once the construction site's permanent electricity connection is installed and operational then the desalination plant would be connected to the fixed power supply and diesel generators decommissioned. It is assumed that this connection will be made before the plant needs to be relocated from the Main Platform to the Temporary Construction Area.

3.1.17 Seawater contains dissolved solids other than salt and other minerals, which are also removed as part of the desalination process. This non-hazardous slurry material would be dried to produce a cake (approx. 25% dry solids) which would require off-site disposal. At peak desalination (equivalent to producing 4,000m^3 potable water per day), approximately one HGV-load of this material would be generated and exported per day.

Seawater intake pipe and associated headworks

3.1.18 A desalination plant typically converts 40% of the seawater it abstracts into fresh water. Therefore, the seawater intake pipe will be sized to abstract up to 10,000m^3 of seawater per day. This requires a small-bore pipeline (between approximately 250-350mm diameter).

3.1.19 The pipe would extend approximately 485m seaward from the temporary Hard Coastal Defence Feature (HCDF) in a minimum 5m depth of water at lowest astronomical tide (LAT) conditions. The indicative location of the pipe is shown in **Figure 3.1** and **Figure 3.2** (Fourth ES Addendum). The intake headworks shall be located seaward of the outer longshore bar and beyond the main areas of longshore transport.

3.1.20 The pipe would be installed under the beach, intertidal zone and seabed using a directional drilling or other trenchless methodology. It would be launched from the landward side of both the temporary HCDF and the haul road, using a drilling rig or similar as described above.

3.1.21 The pipe would be at sufficient depth to ensure the ground conditions are suitable for bentonite support. Casing may be required to ensure ground stability for the first short section of borehole which is likely to penetrate a gravel stratum, depending on specific ground conditions. If required, a casing of a larger size than the final reaming hole would be installed (i.e., with a casing hammer) into dense sand. This will be removed after pipe installation. Using trenchless technology such as this, the pipe would not be present on, or interact with, the beach or seabed except at the seaward drilling exit site (where a headworks would be located as described below).

3.1.22 Bentonite is assumed to be used in the drilling process. A bentonite recovery system would be used during drilling to minimise emissions. Due to the requirement to ensure a stable borehole whilst drilling, it is assumed drilling would require continuous working (24 hours per day).

3.1.23 The intake pipe would hydraulically connect directly to a wet well chamber landward of the temporary HCDF and the haul road, which would be sufficiently deep to allow it to naturally fill with seawater under gravity. The exact water level would rise and fall with the tide but the well would be sufficiently deep to ensure it is constantly wet. The well shaft would be constructed by sheetpile cofferdam or similar to isolate the well from surrounding groundwater. Once operational, seawater would then be pumped out of the well and into the desalination plant. Seawater intake pumps will be located within the well.

3.1.24 To prevent ingress of glass eels and other early life-stages of fish and larger invertebrates the seawater intake would consist of a Passive Wedge-Wire Cylinder (PWWC) screen with a mesh size of approximately 2mm. The screen would be approximately 60cm in diameter and the headworks would be approximately 1.6m in length. The headworks would be positioned orthogonal to tidal currents to reduce the tidal forcing against the screens and minimise approach velocities. The flow velocities within the 250-350mm diameter pipeline would be between approximately 1.1-1.7m/s.

3.1.25 The intake would be located underwater approximately 1m above the seabed. A temporary hazard marker would be located directly above.

3.1.26 The intake screen and pipework will be maintained by periodic cleaning using a compressed air cleaning system. Periodic shock chlorination within the headworks would be applied as necessary to prevent biofouling. Chlorine dosing would be flow controlled and angled inwards to prevent chlorine emissions to the environment. Abstracted water would be dechlorinated prior to the Sea Water Reverse Osmosis membranes.

3.1.27 Localised dredging, in the form of backhoe dredging of similar, is assumed to be necessary in the immediate area surrounding the headworks.

3.1.28 Once the headworks are constructed, scour protection is assumed to be required to manage the effects of seabed level changes. A small area of concrete mattress is assumed to mitigate scour immediately around the section of intake pipe connecting the drilled tunnel to the headworks.

3.1.29 The fish return tunnels and associated headworks are not required until the operation of the power station and use of the seawater intake pipe would cease before they begin any commissioning tests towards the end of the construction period. There would be no interaction between the proposed temporary desalination plant and operation of the cooling system for Sizewell C.

3.1.30 The seawater intake headworks would be decommissioned and removed once the transfer main is fully available. The buried intake pipeline would be grouted (or similar), capped and would remain in-situ. A jack-up barge is assumed to be necessary during both construction and decommissioning of the headworks and associated infrastructure.

Brine water outfall pipe and associated diffusers

3.1.31 A desalination plant typically converts 40% of the seawater it abstracts into fresh water as stated previously. Therefore, the brine water outfall pipe will be sized to discharge up to 6,000m^3 of water per day. This again requires a small-bore pipe (approximately 250-350mm diameter).

3.1.32 The pipe would extend approximately 385m seaward from the temporary Hard Coastal Defence Feature (HCDF) in approximately 4.5m depth of water at LAT. The indicative location of the pipe is shown in **Figure 3.1** and **Figure 3.2** (Fourth ES Addendum).

3.1.33 The outfall pipe would also be installed under the beach and under the seabed using directional drilling or other trenchless methodology as per the description for the intake pipe, including use of bentonite recovery.

3.1.34 The outfall pipe would be fitted with diffusers, in the form of a series of nozzles at the seaward end to enhance initial mixing and minimise discharge plumes. These are likely to be based on a ‘duck bill’ design to prevent intrusion of sand, sediment, saltwater and marine growth. Periodic inspection and cleaning of the outfall diffusers will be required to ensure correct operation. A temporary hazard marker would be located directly above. The outfall diffusers shall be located seaward of the outer longshore bar and beyond the main areas of longshore transport.

3.1.35 Localised dredging, in the form of backhoe dredging or similar, is assumed to be necessary in the immediate area surrounding the headwork. Once the headworks are constructed, scour protection is assumed to be required to manage the effects of seabed level changes. A small area of concrete mattress is assumed to mitigate scour immediately around the section of outfall pipe connecting the drilled tunnel to the diffusers.

3.1.36 Process and maintenance chemicals will not be discharged, with the exception of phosphorus derived from use of a membrane descaling chemical. Aqueous discharges from chemical treatment will be tankered off-site for disposal. This will include maintenance of the 'Clean-In-Place' wastewater from the desalination and prefiltration (ultrafiltration) systems.

3.1.37 The brine water will be balanced and mixed on the construction site as part of the desalination process. It will then be stored in a storage tank adjacent to the desalination plant and pumped through the outfall pipe in a controlled manner on a continuous basis (24-hours per day).

3.1.38 Both the intake and outfall pipes would need to cross the previously installed sheetpiles forming the Temporary Hard Coastal Defence Feature. It is assumed that the directional drill would not cross the sheetpile line below the toe of sheetpiles. The crossing would therefore be accomplished by locally deploying shorter sheetpiles to create a space through which the directional drill would advance.

3.1.39 Water to be discharged via the outfall pipe is likely to be pumped. It is assumed that the pumps would be located within the desalination plant and would be above-ground and enclosed to provide acoustic attenuation.

3.1.40 The seawater outfall headworks would be decommissioned and removed once the transfer main is fully available. The buried intake pipeline would be grouted (or similar), capped and would remain in-situ. A jack-up barge is assumed to be necessary during both construction and decommissioning of the headworks and associated infrastructure.

iii. *Main platform:* Permanent land take within Sizewell Marshes SSSI and realignment of the Sizewell drain

3.1.41 Overall, the construction of Sizewell C would result in the temporary loss of approximately 3.02ha of land within the Sizewell Marshes SSSI. Further details on individual habitat losses, alongside proposed mitigation and compensation, are set out in **Volume 2, Chapter 14** of the **ES** (Doc Ref. 6.3).

3.1.42 Sizewell drain currently runs diagonally across the north-west corner of land that will become the main platform. The drain would therefore need to be

realigned to pass along the western edge of the proposed platform and connect to Leiston drain to the north, as shown on **Figure 3.13** of **Volume 2 Chapter 3** of the **ES**.

3.1.43 Initial access to the current drain would be made via the north or south for vegetation clearance and species relocation. Ground improvement works may be necessary in the form of piles or equivalent, dependent on ground conditions.

3.1.44 The realigned drain would be provided with a falling gradient and width to provide, at minimum, the same capacity as the current alignment. Banks would be varied to provide a more natural appearance.

3.1.45 The trench for the realigned drain would be excavated from the east, using standard wheeled equipment. Sheet piling would be installed on the eastern bank of the realigned drain to the depth of the first suitable crag level. Matting may be used during the works to prevent settlement of machinery into the soft ground.

3.1.46 Once the realignment is complete, the reclaimed area would be infilled with granular material to provide a suitable ground conditions for the creation of the cut-off wall platform.

3.1.47 Further details of the likely construction method for individual sections of the realignment works are set out below.

iv. *Main platform:* Realignment works upstream of IDB DRN163G0201

3.1.48 For realignment works upstream of Internal Drainage Board (IDB) DRN163G0201, as shown on **Volume 2**, **Figure 19E.2** of the **ES** (Doc Ref. 6.3), construction would take place solely from the main platform. The only exceptions to this would be:

- where vegetation clearance is required to provide adequate clearance for plant;
- for the supervision of construction works; and
- where new/repositioned structures are required to maintain water levels within the fen meadow habitat.

3.1.49 The drain would be realigned immediately following construction of the sheet piling. This would better enable construction of a stable bank for the realigned drain closest to where the piling is to take place.

3.1.50 Water levels would be monitored during piling and an allowance made for pumping of land drainage where required to ensure that temporary construction effects are controlled to within acceptable limits.

v. *Main platform:* Realignment works downstream of IDB DRN163G0201

3.1.51 For realignment works downstream of IDB DRN163G0201, as shown on **Volume 2**, **Figure 19E.2** of the **ES** (Doc Ref. 6.3), realignment of the drain would again immediately follow the installation of sheet piling. Access arrangements would be directly from the main platform. Due to the topography and water levels, a new water level control structure is likely to be required on the outer (west) bank to aid water level management in the adjacent wetland area, as described below, and therefore some construction is likely to be required on the outer (west) bank.

3.1.52 Apart from the above exception, construction access, and therefore any associated compaction of the underlying peat and any further temporary works, would be focused on the inner (east) bank to help protect the SSSI. A temporary crossing point may be required on IDB DRN163G0201 to provide access to Goodram's Fen whilst maintaining existing land drainage, until the realigned drain is in place.

vi. *Main platform:* Realignment works at Leiston drain

3.1.53 Construction works will aim to minimise disturbance to Leiston drain and would generally be limited to:

- works within approximately 10m of the new confluence of the Sizewell drain and Leiston drain;
- a further drain connection on the south bank of Leiston drain to a relic drain; and
- small-scale works (as necessary) to modify the form and function of Leiston drain.

3.1.54 Construction is likely to take place from the outer (north) bank of the channel where ground conditions are typically more stable. Where practicable, realignment works would take place concurrently with construction works to the SSSI crossing to minimise disturbance.

vii. *Main platform:* Water level control structures

3.1.55 There are currently many confluences between the Sizewell drain and other tributary drains in the Sizewell Marshes SSSI, as its drainage network is

generally artificially controlled. This includes the use of water level control structures, including sluices and simple piped connections. Monitoring shows them to be effective in contributing to the conservation of biodiversity interests in this SSSI.

3.1.56 As part of the realignment works, additional means of permanently manipulating water levels within the Sizewell Marshes SSSI are proposed. This would ensure water levels that would otherwise have changed as a result of the proposed development can be mitigated, where this is necessary to conserve biodiversity interests. Such control structures would include passage for fish, including eels.

3.1.57 IDB DRN163G0201 would incorporate temporary measures to provide pollution control, which would ultimately be removed to form an open connection with Sizewell drain. It is also proposed that an area of deeper water is created here by excavating the channel bed to a greater depth in a stepped profile. Pipe dams would also be installed as necessary within the site boundary at the confluences with other minor ditches that would adjoin the realigned drain.

3.1.58 A water control structure would be installed in the realigned Sizewell drain, approximately 5-10m south of the confluence with Leiston drain. Due to the capacity of Sizewell drain, a tilting weir is likely to be necessary to provide an adaptive water management regime across the eastern areas of Sizewell Marshes, unless evidence shows that a pipe dam is sufficient at the detailed design stage.

3.1.59 Whilst the realignment works are taking place, short-term temporary blind bunds are likely to be necessary to restrict water flow. Blind bunds are currently present within parts of the SSSI.

viii. *Main platform:* Installation of a cut-off wall and cut-off wall platform

3.1.60 The cut-off wall platform would be constructed around the perimeter of the location of the cut-off wall and would include a perimeter access corridor. The platform would be constructed to a level suitable to enable a uniform level to construct the cut off wall. There would be a retaining slope from the platform to the newly aligned Sizewell drain.

3.1.61 The activities necessary to construct the cut-off wall would be:

- Installation of piles to a depth of approximately 12m to support soft strata during installation of the cut-off wall.
- Installation of a hydraulic cut-off wall to depths of approximately 50m below ground level. Machines would excavate the material, replacing

it with bentonite in the short term. Bentonite would be used to stabilise the trench cutting during excavation.

- Bentonite would be produced on-site at a bentonite farm, which would mix the required solution as well as clean returned bentonite. Bentonite waste would either be removed to an approved landfill site or retained on-site and used in the fill of the borrow pits. Bentonite wastewater would be treated and either discharged via the combined drainage outfall (CDO) or tankered off-site.

- The cut-off wall would be anchored into the low permeability London Clay Formation at depth limiting the hydraulic connection with the wider groundwater regime in the overlying geological strata.

3.1.62 Arisings from the cut-off wall excavations would be stockpiled on the main platform before then being transported via haul road and the SSSI Crossing to the temporary construction area stockpiles.

3.1.63 Groundwater abstracted during dewatering would be treated if necessary before it is either discharged to sea via the CDO in compliance with an environmental permit or stored onsite for reuse in supporting construction activities. To lower groundwater levels within the cut-off wall, a dewatering pumping system would be used in the crag sands below the deepest earthworks excavation.

3.1.64 A secondary cut-off wall would also be installed at the toe of the embankment slope leading to the main platform. This cut-off wall would utilise sheet pile methods to prevent the surrounding peat and crag formations from slumping.

ix. *Main platform:* Installation of launch chambers for marine tunnelling

3.1.65 As part of the construction of the Sizewell C recirculated water outfall tunnels, tunnel boring machine launch chambers are required. These would be constructed outside of the cut-of wall. Localised dewatering would be undertaken independently of dewatering within the cut-off wall.

x. *Main platform:* Construction of a crossing over Sizewell Marshes SSSI, including temporary crossing

3.1.66 The Sizewell Marshes SSSI crossing would comprise separate embankments at either end with an approximately 30m long single-span bridge connecting them. A ledge would be installed to encourage passage by otters. Appropriate lighting and noise protection measures would be deployed to ensure the bridge is viable for use by bats. Further details are set out in the Lighting Management Plan contained in **Appendix 2B** of

Volume 2 of the **ES** (Doc Ref. 6.3). Further details of the permanent design are set out in **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14).

3.1.67 A sheet pile barrier wall would be driven into the ground either side of the Leiston Drain. The bank and channel of Leiston Drain would be unaffected.

3.1.68 The width of the bridge over the Leiston Drain would be approximately 40m and the overall width of the crossing at its base would be up to approximately 70m. Wing walls over the Leiston Drain would seek to maximise daylight. The structure would be up to approximately 8m in height and approximately 45m in width at the underside of the bridge. Therefore, it is assumed the area underneath the centre of the crossing will be in deep shade.

3.1.69 The gradient of the slope on the eastern (seaward) side would be approximately a 1:3 gradient. The landward slope would be approximately a 1:1 gradient accordingly. Soft landscaping would be provided on both sides of the embankment, with more substantial planting on the seaward side.

3.1.70 The existing ground below the embankments is assumed to be improved with a grid of rigid inclusions formed of controlled modulus columns (CMCs) or similar and overlaid with a reinforced granular stone load transfer platform above.

3.1.71 Contamination of the groundwater within the SSSI during construction would be prevented by provision of a sheet pile wall surrounding the construction area and permanent works, which would be embedded into the Crag layer below the softer materials near the surface.

3.1.72 During construction, the SSSI crossing would include segregated lanes for pedestrians, two-way light goods vehicles and two way working for off-highway dump trucks.

3.1.73 Two “Bailey” style temporary crossings would be installed in advance of the main crossing and within the SSSI crossing working area to provide an early route between the temporary construction area and the main construction area and to facilitate construction of the permanent bridge. They would be constructed on a temporary foundation to the south and to the north the foundation would be shared with the proposed permanent foundation. The two temporary crossings would be physically connected and would appear as a single structure.

3.1.74 At the end of the construction phase, the construction haul road would be removed and planted with trees. The remaining access road would continue

to be positioned to the western edge of the embankment, away from the coastal edge. The carriageway would have an approximate width of 12m (including footways) and require approximately 1.5m high safety barriers on either side. The bridge deck structure would be reduced from a width of approximately 40m to approximately 15m to increase light levels on Leiston Drain.

xi. *Main platform:* Laying out of construction roads

3.1.75 Haul roads would provide a dedicated route for heavy earthmoving plant from the main platform to the TCA stockpiles. A conveyor system for the movement of construction material, which would typically be covered, is assumed to be provided along a similar route to the haul roads and connecting with the temporary BLF. A segregated route would be provided for general site traffic.

xii. *Main platform:* Initial coastal defence feature constructed

3.1.76 The area currently benefits from protection by the Bent Hills, a man-made bund structure constructed as part of the landscaping scheme and sea defence for Sizewell B. The Bent Hills extend from south to north along the top of the shore. The Bent Hills merge to the north with an east-west feature known as the Northern Mound, and to the south with SZB sea defence embankments to pass between SZB and the sea.

3.1.77 The Northern Mound is likely to consist of mainly made ground material as a repository for Sizewell B surplus construction materials. Due to seismic requirements, the existing Northern Mound would need to be demolished and excavated down to a suitable formation layer before being built back up. Ground improvement is expected to necessary to stabilise the ground prior to the engineered reconstruction of the Northern Mound and installation of rock armour to form part of the sea defence. The rock armour would then be overlaid with site-won fill material and seeded to allow vegetation to take hold as early in the construction period as practicable.

3.1.78 A new hard coastal defence feature (HCDF) would be required for SZC. The HCDF would be approximately 50m east of the existing Bent Hills and would replace the entire section of Bent Hills located within the SZC site area. The Northern Mound would be incorporated into the HCDF.

3.1.79 Upper layers of sand and shingle from the existing Bent Hills frontage would be stockpiled on the main development site to preserve the seedbank of the coastal vegetation and would be incorporated into the final landscaping of the new sea defence to enable reinstatement of the coastal vegetation.

3.1.80 The sea defences would include replacement and extension of the existing 5m high dune area approximately 25m in front of the HCDF, known as the Soft Coastal Defence Feature (SCDF). The role of the SCDF would be to minimise coastal erosion and release sediment to the beach face, which would occur during a storm event. It is likely that the SCDF would occasionally be eroded and require repair in order to maintain its volume.

3.1.81 A temporary HCDF would be installed to protect the site during the construction phase. The temporary HCDF would comprise a sheet pile wall with a crest height of +7.3m AOD along the eastern perimeter of the main construction area. It would be constructed prior to removal of the part of the Bent Hills which contribute to the SZB sea defences, and prior to deep excavation within the main construction area. This height provides for a 1 in 10,000 year storm event at 2030, including a precautionary assumption for wave height. The sheet pile would be embedded into the underlying Crag layer, which is typically up to -9mOD.

3.1.82 The sheet pile wall would tie in to the Northern Mound at the north, and would extend part way along the SZB frontage, to the seaward side of the retained SZB sea defence at the south. This would provide an overlap, maintaining protection to SZB against wave runup without requiring intrusive work to the SZB sea defences. The end of the overlap area would be refilled with shingle to maintain continuity of protection.

3.1.83 The temporary HCDF would be located on the line of what would become the seaward slope of the permanent HCDF, as shown in **Figure 2.2.21** of **Volume 2** of the **First ES Addendum**. The parameter location of the temporary HCDF is shown at **Volume 2**, **Figure 2.2.2** of the **First ES Addendum**.

3.1.84 The temporary defence would be breached locally to allow access to the permanent BLF area; however, this would only occur once the permanent defence has been constructed up to a minimum level of 7.3m AOD.

b) Main platform: phase 2

i. *Main platform:* Excavation of unsuitable material within the cut-off wall and backfilling

3.1.85 Earthworks would commence alongside dewatering of the area within the cut-off wall area, as shown in **Figure 2.2.35** of **Volume 2** of the **First ES Addendum**.

3.1.86 Existing made ground and granular materials would be removed and transported to the stockpile areas within the TCA.

3.1.87 Peat and clay materials that are unsuitable for re-use on the main platform would be removed and transported to the borrow pit area. An agent would be added, if necessary, to reduce the water content and make the materials easier to deposit and compact.

3.1.88 The main platform would be backfilled to approximately 7.3m AoD.

3.1.89 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

ii. *Main platform:* Marine shafts and tunnelling

3.1.90 Work would commence to construct the marine launch chambers and bore the intake and outfall tunnels from adjacent to the main platform.

iii. *Main platform:* decommissioning and relocation of desalination plant

3.1.91 The desalination plant will be decommissioned and relocated to the Temporary Construction Area once it becomes a physical constraint to construction activity on the Main Platform, in the event that the permanent transfer main is not operational by this point. Any such relocation would be phased to coincide with a period of relatively low potable water demand. In order to maintain continuity of supply, desalination plant would be installed and commissioned at the relocation site before the existing plant on the Main Platform is fully decommissioned. It is assumed that any such relocation would occur in approximately Year 4 of construction.

c) *Main platform:* Construction of the permanent beach landing facility

3.1.92 The permanent BLF (Parameter Zone C16) is proposed to enable deliveries of very large loads such as Abnormal Indivisible Loads (AILs) to support construction of the power station. An access road would link the permanent BLF to the main platform via the lower levels of the Northern Mound.

3.1.93 The permanent BLF would consist of a piled platform, fenders (located at the seaward end), a ramp, a grounding platform on the sea bed and mooring dolphins. It would require approximately 32 permanent piles in total. No pile driving would take place between May and August (inclusive). The approximate dimensions of the piles are as follows:

- 28 of these piles are expected to have a diameter of approximately one metre and would be spaced a minimum of approximately 9m apart, excluding fender piles and mooring dolphins.
- Four fender piles and mooring dolphins are expected to have a diameter of approximately 2.5 metres.

3.1.94 The construction methodology (including piling method) would be the same as set out below for the temporary BLF.

3.1.95 The grounding platform would be made of concrete, or similar. It is assumed to comprise a concrete mattress (concrete pads connected together, or similar). It would protrude above bed level by less than a metre and shallow foundations are assumed to be embedded into the sea bed. The sea bed would be graded to a roughly level surface before laying the platform, which is assumed to require localised dredging of less than a metre. Dredged material would not be removed from the sea and would be placed in close proximity to the BLF.

3.1.96 The sequence of installation would comprise:

- Prepare grounding area (approximately 100m x 30m) by trimming the seabed with an excavator.
- Place concrete mattress in grounding area using a crane. Approximately 25 small bore piles would be required around the platform to control lateral shift.

3.1.97 On occasion, light suction dredging may be required if sand accumulates on the platform when the BLF is in use. Excavated material would not be removed from the sea and would again be placed in close proximity to the platform.

3.1.98 The platform may be removed prior to storm events or at the end of each campaign period. It would then be reinstalled ready for use. The platform would be removed at the end of its use period within the construction phase. A grounding pocket would be used for deliveries after the platform is removed, as per the originally submitted assessment.

3.1.99 A dredging volume of approximately 9,250m^3 is assumed to facilitate access and barge grounding.

3.1.100 The Suffolk Coast Path would be redirected up and down the shoreline as necessary to facilitate construction of the permanent BLF, except in rare circumstances where it is considered unsafe to do so. In such instances, use of the temporary inland diversion would be necessary, as shown in **Volume 2**, **Figure 15I.4** of the **ES** (Doc Ref. 6.3). Access to the beach would follow the same approach.

3.1.101 The BLF would extend up to approximately 100m seaward of the HCDF. Any coatings or treatments applied to the BLF would be suitable for use in the marine environment.

3.1.102 Once operational, the BLF would typically receive deliveries by day. Barges would be loaded at a transhipment port and would be assisted typically by two tugs and moor at the end of the permanent BLF at high water. Up to 100 deliveries per annual campaign are assumed using barges with a capacity of approximately 3,000 tonnes.

3.1.103 Deliveries would typically be transported onto the main platform or to the TCA without delay via the BLF access road, which would cross the beach and would be incorporated into the embankment of the Northern Mound.

3.1.104 During long periods of downtime, such as the winter season, the deck panels to the BLF would be temporarily removed and stored on the main development site.

3.1.105 The BLF would be retained as a permanent development for occasional use during the operational phase of the power station, as set out in more detail in **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14).

i. *Main platform:* Construction of the temporary beach landing facility

3.1.106 The temporary BLF (Parameter Zone C20) is proposed predominantly for the delivery of bulk construction materials, such as aggregate. Other types of material may also be imported through the temporary BLF, such as marine tunnel segments for marine works.

3.1.107 The temporary BLF would be in operation for approximately 8 years and would be located within construction parameter zone C20 (see **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5)), which is located approximately 165m to the south of the permanent BLF.

3.1.108 The temporary BLF would be up to approximately 505m in length and up to approximately 12m in width for the main jetty. An enlarged unloading area would form a jetty head with dimensions of up to approximately 62m in width. A single berth (for a single vessel) is assumed at its seaward end. The structure would be a visually recessive colour as far as reasonably practicable. An indicative visualisation of the temporary BLF is shown **Figure 2.2.4** in **Volume 2** of the **First ES Addendum**.

3.1.109 A temporary conveyor would be installed along the length of the temporary BLF deck and would be the primary method of unloading material. The conveyor would follow the deck to the Hard Coastal Defence Feature (HCDF) where it would continue into the secure construction area. Except where necessary for loading, unloading or maintenance, the conveyor would be covered. The conveyor would pass over the Suffolk Coast Path on the deck of the temporary BLF. It is assumed that the conveyor system

would travel continue into the construction site and follow a similar route to the haul roads. The underside of the temporary BLF deck would be at least 3.7m above the ground level of the Suffolk Coast Path.

3.1.110 The Suffolk Coast Path would be redirected up and down the shoreline as necessary to facilitate construction of the temporary BLF, except in rare circumstances where it is considered unsafe to do so. In such instances, use of the temporary inland diversion would be necessary, as shown at **Volume 2**, **Figure 15I.4** of the **ES** (Doc Ref. 6.3). Access to the beach would follow the same approach. An indicative visualisation of the temporary BLF on the beach is shown in **Figure 2.2.5** of **Volume 2** of the **First ES Addendum**.

3.1.111 Other main infrastructure on the temporary BLF deck is assumed to include: an access road, for exceptional use by large vehicles; a private access footpath, lighting, hoppers; and railings or similar (to also provide some low-level screening of vehicle movements).

3.1.112 Standard navigation lights would be required on mooring dolphins and on nearby navigation markers and buoys. Task and ambient lighting would be required along the temporary BLF and would be installed, operated and maintained in general accordance with the controls and limits set out in **Appendix 2B** of the **ES** (Doc Ref. 6.3).

3.1.113 A self-propelled vessel typically delivering up to approximately 4,500 tonnes of cargo per delivery is assumed, making up to approximately 400 deliveries between April and October (inclusive) and up to approximately 200 additional deliveries for the remainder of the year, for each year of operation.

3.1.114 The temporary BLF would extend seaward of the outer longshore sand bar. As such, there would be no requirements for dredging and vessels could berth alongside with sufficient under keel clearance. The length of the vessel may be up to approximately 120m. The vessel is assumed to include an excavator at deck level to unload material.

3.1.115 The majority of vessel movements would typically travel to the site from the south, following a corridor between approximately two nautical miles and approximately six nautical miles offshore, except where it is necessary to deviate on safety grounds. It is assumed for the purposes of assessment that all vessels travelling to/from the south would navigate the full corridor between the site and the Thames Estuary. All vessels are assumed to approach the temporary BLF from the north of the Sizewell Bank, to avoid the area of relatively shallow water on the approach from the south.

3.1.116 Approximately 114 piles would be required to construct the temporary BLF, of which approximately 12 would be located above Mean High Water Springs. They would each be up to approximately 1.2m in diameter, with the exception of two berthing dolphins and two mooring dolphins (each approximately 2.5m in diameter). Six raking piles are assumed at the seaward end of the unloading platform. Cross braces would be required between some of the piles for stability.

3.1.117 Spacing between piles would be no less than 10m on the BLF pier and no less than 12m on the unloading platform, with the exception of where the dolphins, raking piles and pier adjoin the unloading platform.

3.1.118 It is assumed that the piles would be driven by hammering with the following mitigation measures in place:

- Marine mammal observation – a visual inspection for local marine mammals prior to commencement of piling.
- Use of a noise reduction system on the hammer (e.g. hydrohammer).
- Slow start procedure.
- No pile driving between May and August (inclusive).

3.1.119 Two piles would typically be driven every three days (for each BLF) to an embedment depth of approximately 20m, with hammering typically lasting approximately one hour per pile. Piling is assumed to occur simultaneously.

3.1.120 With the exception of the mooring dolphins, which would be installed using a jack-up barge, the temporary BLF would be predominantly constructed without placing construction vehicles into the sea. A crane, cantilever frame and piling equipment (including generators) are assumed to be located on the temporary BLF during construction. The temporary BLF would be constructed sequentially from the shore. A crane would not be used as part of normal operations.

3.1.121 The duration of the construction period for the temporary BLF is expected to be up to approximately nine months. The installation and commissioning of the conveyor system is assumed to take approximately a further eight months. It is assumed that the temporary BLF would be constructed at the same time as the permanent BLF.

3.1.122 The temporary BLF would predominantly be dismantled without placing construction vehicles into the sea, including use of a crane on the BLF. Piles would typically be removed by pulling using a vibrohammer. Piles that

cannot be removed using this method would require the use of a jack-up barge and would be cut off below sea bed level and removed.

d) Main platform: phase 3

i. *Main platform:* Construction of buildings, plant, facilities and other structures

3.1.123 The nuclear island buildings would be constructed with reinforced concrete. The concrete would be mixed using onsite batching plants in the temporary construction area.

3.1.124 The reactor building incorporates a steel liner which forms the inner shell of the building. Sections of the liner would be pre-fabricated within either the main platform or the temporary construction area and craned into position.

3.1.125 Concrete buildings within the conventional island would be constructed using similar methods to the nuclear island buildings.

3.1.126 Construction of pylons within the main platform would generally follow the same construction methodology as described below for National Grid pylons.

3.1.127 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

e) Main platform: phase 4

i. *Main platform:* Installation and testing of mechanical and electrical plant

3.1.128 The majority of mechanical and electrical activity would take place within the power station buildings.

3.1.129 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

ii. *Main platform:* Construction of permanent coastal defence features

3.1.130 By Phase 4, the permanent sea defences would be constructed, involving the raising of the construction phase sea defence, to the permanent level of +12.6m AOD . This height provides for a 1 in 10,000 year storm event at 2140, including a precautionary assumption for wave height. Up to two metres of landscaping is assumed on the seaward slope and the crest, which would be constructed to varying depths to create naturalistic undulations to a typical gradient of approximately 1 in 3 on the

embankment. The total height of the permanent HCDF with landscaping is therefore up to +14.6m AOD. The seaward toe of the sea defence would be buried and seated at a level of approximately +0mOD. A temporary cofferdam would be created to facilitate construction below the adjacent water level.

3.1.131 The permanent design would include rock armour placed on the seaward side of the sea defence.

3.1.132 Fill material is assumed to be placed on the landward side and the core of the sea defence, with reinforcements, as necessary. Ground improvement works are assumed to be necessary using CMCs or similar where underlying peat is present.

3.1.133 Landscaping is assumed to comprise filling the interstices of the rock armour with shingle and sand followed by topsoil and planting, as appropriate. The coast path would form part of the seaward landscaping and would typically be placed at approximately +5mOD.

3.1.134 Unlike other construction materials, it is assumed that the rock armour or similar would be offloaded from grounded barges directly onto the beach.

3.1.135 Indicative details of the permanent HCDF are shown on **Volume 2, Figure 2.2.22** and **Figure 2.2.23** of the **First ES Addendum**.

f) Main platform: phase 5

i. *Main platform:* Removal of temporary facilities to allow completion of groundworks, landscaping and the main platform

3.1.136 Following completion of the works listed above, temporary facilities on the main platform would be removed and the final surfacing would be undertaken as part of on-site hard landscaping.

3.1.137 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

3.2 Sizewell B relocated facilities and National Grid land

3.2.1 The Sizewell B relocated facilities and National Grid land is the area that certain Sizewell B facilities would be moved to in order to release other land for the proposed development, and land required for the National Grid transmission network, as illustrated on **Figure 1.2** of **Chapter 1** of the **ES**.

3.2.2 A full description of works required for Sizewell B relocated facilities is provided within **Volume 1, Appendix 2A** of the **ES** (Doc Ref. 6.2), as

amended by **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14). A summary of the works is also included below. For the purposes of this **ES**, it has been assumed that the first phase of the Sizewell B relocated facilities works would be carried out in Phase 0 pursuant to a planning permission granted by East Suffolk Council (ESC) under the Town and Country Planning Act 1990. The second part of the Sizewell B relocated facilities works would be carried out pursuant to the DCO in Phases 1 and 2 in parallel with other DCO works due to take place at that time.

3.2.3 **Table 3.6** sets out the parameters for construction activities on Sizewell B relocated facilities and National Grid land. The table should be read in conjunction with the parameter plan shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). Existing ground levels are shown on **Figure 1.8** of **Chapter 1 Volume 2** of the **ES** (Doc Ref. 6.3).

3.2.4 Further details are set out by phase below and illustrated in **Figure 2.2.38** of **Volume 2** of the **First ES Addendum**.

Table 3.2: Construction zones and height parameter – Sizewell B relocated facilities and National Grid land.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone C17 Construction activities on Sizewell B relocated facilities	Working envelope for Sizewell B relocated facilities. Structures to include: temporary buildings, tower cranes and mobile cranes.	50m AoD.
Zone C19 Working envelope for National Grid	Working envelope for National Grid land. Structures to include: temporary buildings, tower cranes and mobile cranes.	120m AoD.

a) Sizewell B relocated facilities works: Phase 0

i. *Sizewell B relocated facilities works*: Coronation wood area

3.2.5 Initial construction activity comprises the felling and grubbing of Coronation Wood.

3.2.6 Once Coronation Wood has been cleared, construction of the western access road would commence to allow the separation of construction traffic from the main access road to Sizewell B at the earliest opportunity. A run-off drain would be constructed to the west of the road to avoid surface water run-off from the site discharging into the Sizewell Marshes SSSI.

3.2.7 Following construction of the western access road to a standard suitable for the construction traffic, the remainder of the Coronation Wood development area would be levelled. Given the relatively constrained working area within Coronation Wood, an area within the northern part of the site (that was previously used for the construction of Sizewell B) has been identified for temporary stockpiling of excess material. The clean material would be spread across the existing field to a height no greater than 1m, leaving a 5m corridor around the perimeter for vehicular access and to act as a silt control area for any run-off. The side slopes would tend to be limited to 1:3 gradient for stability.

3.2.8 Once the Coronation Wood development area has been levelled, the facilities would be constructed alongside the external infrastructure (roads and lighting), drainage and landscaping

ii. Sizewell B relocated facilities works: Outage store

Option 1

3.2.9 Construction of the outage store would first include diversion/ protection of existing services, excavation and construction of reinforced concrete pads for foundation, construction of concrete base at ground level, erection of steel superstructure and the installation of cladding and building services.

Option 2

3.2.10 Construction of the outage store would first require the demolition of the existing general store. Following site clearance and the diversion/ protection of existing services, temporary sheet piles to a maximum depth of approximately 20m may need to be installed to allow for the excavation of the basement to commence, the depth of which would broach the groundwater table. Following piling and the excavation of the basement, the depth below the groundwater table would be dewatered.

3.2.11 Temporary facilities, plant, cranes, machinery and other temporary works would be required for each option.

iii. *Sizewell B relocated facilities works:* Outage car park and new access onto Sizewell Gap

Option 1

3.2.12 The existing west car park would be repurposed for use during outages as the outage car park. No significant civils works are anticipated.

Option 2

3.2.13 Topsoil would be stripped from all relevant areas of Pillbox Field to prepare the area for construction activities. Where feasible, the topsoil would be re-used on non-paved areas, such as on the embankments of the outage car park and vehicular access road.

3.2.14 Following the topsoil strip, earthworks would be undertaken to achieve the desired formation levels. Excavated material would be reused as fill, where appropriate.

3.2.15 The existing technical training centre would be refurbished and would temporarily house the Sizewell B visitor centre during this phase of construction.

b) Sizewell B relocated facilities works: Phases 1 and 2

i. *Sizewell B relocated facilities works:* Development of Sizewell B relocated facilities ongoing

3.2.16 To allow for the construction of the new visitor centre, it is envisaged that the Sizewell B power station perimeter road immediately to the north of the Coronation Wood development area would be temporarily closed, with traffic diverted along the western access road. This would allow the contractor to set up cranes and laydown within this area.

3.2.17 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

3.2.18 To provide a suitable working area for construction, a number of modifications would be made to the existing Sizewell B site access arrangements for vehicles and workers. These temporary access arrangements would be constructed before the existing facilities are taken out of use.

3.2.19 Construction of a number of facilities within the defined working envelope, including office accommodation for operations and outage staff, an associated mess facility; canteen; general storage; a civils store and workshop; a general store and changing facilities; and a 'front of house' for staff and visitors to the Sizewell B power station.

3.2.20 In addition, Sizewell B facilities to be relocated would be demolished on a phased basis.

c) National Grid works: Phase 2

i. National Grid works: substation

3.2.21 An extension to the existing National Grid 400kV substation would be required to accommodate the additional generation output of Sizewell C. The overhead lines that currently terminate at the existing National Grid 400kV substation would be diverted into a new substation building built alongside and interconnected with the existing substation building, so that the electricity generated by both the existing Sizewell B and new Sizewell C power stations can be exported to the National Electricity Transmission System.

3.2.22 This National Grid construction site would accommodate construction offices, welfare facilities, car parking, workshops, spoil storage and material/equipment laydown and storage areas. Water, sewerage, electricity, and communication services would be provided either via mains connection or mobile supplies (such as bowsers, septic tanks, and generators).

3.2.23 Works to the National Grid substation would require the use of temporary water-tight working areas within the substation footprint, formed by scaffolding wrapped in tarpaulin or similar material, to facilitate clean working and weather-proof conditions where this is required, such as the jointing and termination of cables. These temporary water-tight working areas would be large enough to accommodate cranes or other forms of lifting systems.

3.2.24 The National Grid substation would connect into each of the four circuits on the National Grid 400 kilovolts overhead lines. To facilitate these connections, modifications to the existing overhead line would be required which would include a new pylon, removal of an existing pylon and the permanent realignment of a short section of the overhead line to connect to the substation.

ii. *National Grid works:* overhead line realignment works

3.2.25 The new pylon would require excavation around the pylon base for foundations and hardstanding areas, for erection of the pylon by crane.

3.2.26 Protective measures may be required at sensitive locations along the new overhead alignment such as roads or footpaths, when installing the new conductors and connecting into existing circuits. These measures may include erection scaffolding, temporary controls around roads or footpaths along the diversion.

3.2.27 Temporary working areas and access tracks would be required to construct the new/replacement pylon within the Sizewell Marshes SSSI, string the conductors and dismantle the existing pylon.

3.2.28 Temporary vehicle access would be required to each of the two pylon working areas.

3.2.29 Once the replacement/new pylon is constructed overhead line circuits would be transferred. Removal of the existing piling and associated foundations up to a depth of approximately 1m would take place. Subsoil and topsoil would be reinstated.

3.2.30 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

3.3 Offshore works area

a) Offshore works area: Phases 1-5

3.3.2 The offshore works area is the area where offshore cooling water infrastructure and other marine works would be located, as illustrated on **Figure 1.2** of **Chapter 1** of the **ES**. Further details on the location of offshore infrastructure are set out in **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14).

3.3.3 Construction work for offshore infrastructure would begin in Phase 1 and continue until Phase 5.

i. *Offshore works area:* Cooling water infrastructure

3.3.4 Off-shore cooling water infrastructure consists of two subterranean intake tunnels and one outfall tunnel.

3.3.5 The cooling water tunnels would extend approximately 3 kilometres (km) offshore and would be bored using tunnel boring machines from land at depths of approximately 30m under the seabed. The tunnel boring machine heads would be left at the end of each tunnel run, approximately 30m under the seabed.

3.3.6 The excavated material would be transported back to the tunnel entrance where any bentonite used in the tunnel boring process would be recovered for re-use before the excavated material is transported to the appropriate stockpile. Treatment of spoil would be piped to a slurry treatment plant in the temporary construction area and dehydrated. Tunnelling would be a continuous activity requiring 24-hour working and preliminary estimates suggest this would take around 15 months to complete. Excavated material

would be transported to on-site stockpiles during both day and night, although distribution and grading of the material would be restricted to the daytime in order to reduce night-time noise levels. This may comprise approximately 50 articulated dump truck movements per night.

3.3.7 Connections between the intake and outfall structures and the bored tunnels would be made via lined vertical shafts bored from the seabed down to the tunnels. The shafts would be bored using a drilling technique and are likely to be undertaken from a jack-up rig.

3.3.8 The intake and outfall headworks would be prefabricated off-site and floated into position. Prior to the installation of the headworks small scale capital dredging to remove surficial sediments to the underlying bedrock. Dredging is anticipated to be by cutter suction dredger with local disposal. A description of dredging activities is provided in the section below.

3.3.9 Following dredging, the bedrock would undergo ground preparation and a gravel bed would be installed below the proposed headwork, which would be lowered into position.

3.3.10 Vertical connection shafts would be drilled with the headwork in-situ to connect the headworks to the subterranean cooling water tunnels. Drilling would occur through the centre of the headworks.

3.3.11 After the headworks are installed and scour protection placed in-situ (where required), soft-sediment would be back-filled.

ii. *Offshore works area:* Fish Recovery and Return system

3.3.12 Two Fish Recovery and Return (FRR) systems would be constructed, one for each reactor. The tunnels would be drilled beneath the seabed using a directional drilling technique, with arisings transported landward for disposal. The FRR systems would terminate in a seabed outfall structure approximately 300m offshore.

iii. *Offshore works area:* Combined Drainage Outfall

3.3.13 The combined drainage outfall (CDO) would be constructed early in the construction phase and act as the site discharge outfall. Prior to CDO completion, station effluents would be reused where possible or tankered offsite for managed disposal.

3.3.14 The CDO would be created using a directional drilling technique under the foreshore and seabed, with arisings transported landward for disposal. Two individual tunnels would connect and terminate in a CDO structure approximately 300m offshore. The tunnels would be connected to a

concrete outfall structure anticipated to be of similar dimensions to the FRR headworks.

3.3.15 As required, the CDO would discharge material such as the following during the construction period:

- treated final effluent originating from the construction phase sewage treatment plant;
- treated surface water run-off from the deep excavation within the main platform;
- treated surface water run-off from the wider construction site, as required;
- groundwater, treated if required, from dewatering within the main platform cut-off wall;
- treated plant cold commissioning waters;
- treated concrete wash water; and
- treated water originating from tunnel construction.

3.3.16 Discharges would be treated with bypass separators to minimise potential hydrocarbon contamination from mobile or fixed plant operations and a silt-buster or similar technology to reduce sediment loading. The CDO would discharge to the sea in compliance with the requirements of an environmental permit. Further details relating to discharges during the construction period are set out in **Appendix 21G** of **Volume 2** of the **ES**.

iv. *Offshore works area:* Temporary marine outfall

3.3.17 In the period before the CDO is constructed, surface water would be temporarily pumped from the construction site, over the temporary sea defences and into a chamber before discharging water through a gravity pipe towards the shoreline. The pipe size is assumed to be less than 50cm in diameter. A maximum total suspended solids content of 250mg/l is assumed.

3.3.18 The outfall would be designed to be pumped at a maximum permitted rate of 200 litres per second when required. It is assumed that the outfall would typically only be used infrequently when surface water is captured in the construction site which cannot be discharged through infiltration or to the surrounding watercourses (e.g. due to flooding or storm events). Surface water under normal conditions would be collected in balancing ponds,

treated via water treatment systems and then either infiltrated to ground or discharged to the surrounding watercourses, in accordance with the **Outline Drainage Strategy** (Doc Ref. 6.3).

3.3.19 The temporary outfall would be laid under the Suffolk Coast Path to ensure no obstruction and would then terminate above the Mean High Water Spring tide level. The temporary outfall is assumed to be located south of both the permanent and temporary beach landing facilities in the approximate location shown at **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14).

3.3.20 The Suffolk Coast Path would remain open during construction and operation of the temporary outfall as far as it is reasonably practicable and safe to do so.

3.3.21 Once the CDO is constructed the temporary outfall would be removed.

v. *Offshore works area:* Dredging and disposal

3.3.22 To accommodate the safe passage of barges and accompanying tugs to the permanent BLF, a navigational channel would be required in the nearshore zone occupied by the two longshore bars.

3.3.23 Dredging would only be needed in periods when the permanent BLF is in use. Due to navigational limitations this coincides with calm sea conditions, meaning the permanent BLF usage, and therefore dredging, would take place approximately between the months of April and October.

3.3.24 To provide a navigational channel and grounding pocket, an area approximately 62m wide would need to be dredged and profiled to allow the barge and tug sufficient room to manoeuvre and dock approaching from the south within the shallow subtidal zone (less than 6m water depth). Plough dredging pushes the sediment aside from the required area, which is then redistributed by subsequent tides

3.3.25 The frequency of maintenance dredging would depend on the specific tolerance of the barges to the substrate profile and seasonal infilling rates. Maintenance dredging is anticipated at least annually due to infilling during winter periods but may also be required following storm events.

3.3.26 Dredging and disposal for other works would comprise:

- CDO headworks: Cutter suction dredger with local disposal at sea via a down tide pipe.

- Cooling water system intake and outfall tunnel headworks: Cutter suction dredger with local disposal at sea via a down tide pipe. Drilling with arisings released at drill site for the intake heads.
- FRR tunnel headworks: Cutter suction dredger with local disposal at sea via a down tide pipe.

3.3.27 The anticipated total volume of dredging during construction is approximately 110,000m^3, covering a surface area of approximately 45,000m^2. All dredging and disposal will take place within the geographical limits of the **Draft DCO** (Doc. Ref. 3.1).

3.3.28 The duration of dredging works required for the BLF, CDO, cooling water system and FRR tunnels is likely to be approximately 12 weeks each.

3.4 Temporary construction area

3.4.1 The TCA refers to the main area of land that would be required largely on a temporary basis to facilitate the construction of the proposed development. This land would primarily be located to the north of the Sizewell Marshes SSSI between the B1122 and the coast, to the north-west of the main platform as shown on **Figure 1.2** of **Chapter 1 Volume 2** of the **ES**.

3.4.2 **Table 3.7** sets out the maximum heights for construction activities in the TCA. The table should be read in conjunction with the zones shown on **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14) and the following description. Existing ground levels are shown on **Figure 1.8** of **Chapter 1 Volume 2** of the **ES** (Doc Ref. 6.3).

Table 3.3: Maximum heights for construction activities in the temporary construction area.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zones C2a and C2b: Construction of common user facilities.	Working envelopes for liner fabrication facilities, workshops, storage buildings, offices and mess facilities and concrete batching plants.	Zone C2a: 70m AoD Zone C2b: 70m AoD.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zones C2a and C2b: Construction of common user facilities – exceptional circumstances.	Working envelopes for exceptional structures that are required for the lifting and installation of reactor domes and other time limited activities that require specialised cranes of lifting equipment that go above the height parameters set out in Construction Zone 2. Typically these would include mobile and tower cranes.	Zone C2a: 160m AoD. Zone C2b: 140m AoD.
Zone C3: Construction of contractor compounds and other yards.	Working envelope for workshops, storage buildings, offices and facilities to support the contractors compound area, reinforcement and formwork prefabrication yards	35m AoD.
Zone C3: Construction of contractor compounds and other yards – exceptional circumstances.	Working envelope for exceptional structures such as mobile cranes and tower cranes.	120m AoD.
Zone C4: Construction of southern earth bund.	Working envelope for landscaped bund bordering the south of the temporary construction area.	18m AoD.
Zone C5: Construction of main stockpile.	Working envelope for main stockpile area. Parts of the zone used as a borrow pit will not subsequently exceed a stockpile height of 5m above existing ground level.	50m AoD.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone C5a: Construction of stockpile, contractor compounds and other yards.	Working envelope for stockpile area, workshops, storage buildings, offices and facilities to support the contractors compound area, reinforcement and formwork prefabrication yards	35m AoD.
Zone C6: Construction of eastern borrow pit and stockpile.	Working envelope for eastern borrow pit and stockpile area. Parts of the zone used as a borrow pit will not subsequently exceed a stockpile height of 5m above existing ground level.	20m AoD.
Zone C7: Construction of western borrow pit and stockpile.	Working envelope for western borrow pit and stockpile area. Parts of the zone used as a borrow pit will not subsequently exceed a stockpile height of 5m above existing ground level.	20m AoD.
Zone C8: Construction of northern stockpile area.	Working envelope for northern stockpile area.	20m AoD.
Zone C9: Construction of site entrance hub.	Working envelope for parking facilities, temporary buildings, security facilities and freight management.	35m AoD.
Zone C9: Construction of site entrance hub – exceptional circumstance.	Working envelope for exceptional structures such as mobile cranes.	65m AoD.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone C10: Construction of rail extension route stockpile area.	Working envelope for rail extension route (part) and stockpile area.	30m AoD.
Zone C11: Construction of Lover's Lane stockpile area.	Working envelope for stockpile area.	30m AoD.
Zone CA1: Construction of accommodation campus residential buildings.	Working envelope for the accommodation campus residential buildings and associated works.	36m AoD.
Zone CA1: Construction of accommodation campus residential buildings – exceptional circumstances.	Working envelope for exceptional structures such as mobile cranes.	70m AoD.
Zone CA2: Construction of accommodation campus multi-storey car park.	Working envelope for the accommodation campus multi-storey car park and associated works.	25m AoD.
Zone CA2: Construction of accommodation campus multi-storey car park – exceptional circumstances.	Working envelope for exceptional structures such as mobile cranes.	70m AoD.

Construction Zone	Explanation of Parameter	Construction Zone Parameter (Max. Height)
Zone CA3: Construction of accommodation campus non-residential buildings.	Working envelope for the accommodation campus non-residential buildings and associated works.	35m AoD.
Zone CA3: Construction of accommodation campus non-residential buildings – exceptional circumstances.	Working envelope for exceptional structures such as mobile cranes.	65m AoD.

a) Temporary Construction Area: Phase 1

i. *Temporary construction area:* Establishment of construction area

3.4.3 Work would begin by securing the site through installation of security fencing and site clearance. Fencing would be combined with ecological protection measures, where necessary. Areas of vegetation clearance and retention are shown on **Figures 2.2.4** and **2.2.5** of **Volume 2** of the **Second ES Addendum.**

3.4.4 Utilities would be diverted and archaeological mitigation works would take place as necessary.

3.4.5 An acoustic fence would be used where it is necessary to attenuate noise levels, which would be up to approximately 5m in height, with localised variations in height as necessary. The approximate locations of acoustic fences are shown on **Figure 3.1** of **Chapter 3 Volume 2** of the **ES** (Doc Ref. 6.3).

3.4.6 Site clearance would include topsoil strip and associated stockpiling, diversion of utilities and vegetation removal. Early planting would take place where practicable.

3.4.7 The southern earth bund would be delivered.

3.4.8 Construction of the batching plant would begin and initial modular site offices and welfare facilities would be installed.

3.4.9 Early access routes would be established, to facilitate movement of plant, materials and workforce.

3.4.10 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

ii. *Temporary construction area:* Creation of water resource storage area and associated infrastructure

3.4.11 A temporary water resource storage area would be constructed north of Parameter Zone C7 alongside a water management zone. The storage area is expected to provide a volume of less than 25,000m^3 of non-potable water for use in the construction process and would provide the ability to store water over the winter period typically for use during the summer months. Water would be stored above groundwater level to ensure it is hydrologically separate and does not cause adverse effects to groundwater levels on-or off-site.

3.4.12 The water resource storage area is likely to be part below existing ground level and part above existing ground level, with raised embankments as necessary up to approximately 3m in height.

iii. *Temporary construction area:* Wet woodland habitat and flood mitigation area

3.4.13 The area extending along the edge of The Grove, could be designed in part to create wet woodland habitat. The area would include a linear reedbed, which is likely to make the area more attractive to water birds. This, as well as the vegetated margins of the flood mitigation area described below, should provide foraging opportunities for marsh harriers during the construction of Sizewell C.

3.4.14 Additional flood mitigation land would be provided to the north of the wet woodland habitat. Design considerations would include: siting, to benefit from screening provided by established vegetation; the shape and profile of earthworks, to reference local conditions and avoid an over engineered appearance; and, the establishment of planting, for wildlife and aid integration into the landscape.

3.4.15 Screening planting would be provided along the eastern side of Sandy Pytle Plantation and at the northern edge of Dove House Hill. As well as vegetation screening, the banks of the water resource storage area would have a naturalistic design. Planting will include a mosaic of rough grassland, wild flower mixes, hedgerows and scrub areas.

3.4.16 These proposals would provide approximately 100,000 cubic metres of additional flood mitigation volume and require excavation up to approximately -2mOD.

3.4.17 Construction activity would predominantly consist of earthmoving activities using excavators and earthmoving vehicles. Construction activity is assumed to also include a materials handling area west of the flood mitigation area during the construction period of this feature only (approximately 6 months).

3.4.18 Once the construction of Sizewell C is complete and compensatory marsh harrier foraging habitats are no longer required, the open water and wet reedbed habitats could be transitioned to wet woodland habitats, either through natural successional processes or through planting. In the long term, if progressed, this would compensate for the loss of wet woodland from the Sizewell Marshes SSSI. The flood mitigation area would also be linked to the proposed permanent wetland habitat corridor immediately to the south to create a single integrated wetland feature, as illustrated in **Volume 2**, **Figure 2.2.14** of the **First ES Addendum**.

iv. *Temporary construction area:* Laying out of construction roads and parking

3.4.19 The main haul routes would be developed to facilitate the movement of vehicles carrying excavation and construction materials to and from the main platform, as shown on **Figure 2.2.2 Volume 2** of the **First ES Addendum and Figure 2.2.3 of Volume 2 of the Second ES Addendum**. These haul routes would be approximately 30m wide with earth bunds either side for use by heavy duty earthmoving equipment. Segregated site roads would be provided for other traffic, including HGVs and, where practicable, would be aligned with the subsequent permanent access road. A conveyor system for the movement of construction material, which would typically be covered, is assumed to be provided along a similar route to the haul roads and connecting with the temporary BLF.

3.4.20 Construction roads would be constructed in accordance with the current relevant standards and guidance as required for heavy vehicle usage and estimated traffic volumes. These roads would be surfaced with tarmac or compacted granular material as appropriate.

3.4.21 An initial temporary drainage system would be installed for predominately managing surface water run-off. This would be replaced by a site construction drainage system which would manage site-wide surface water run-off associated with the various platforms, groundwater from dewatering, and treated sewage effluent and any other permitted construction waste

streams. Further details are set out in the drainage section of this document.

3.4.22 Initial parking would be provided for approximately 300 cars and approximately 75 HGV parking spaces during the early years within the temporary construction area, accessed off Lover's Lane.

v. *Temporary construction area:* Excavation of borrow pits begins

3.4.23 Topsoil and subsoil would be stripped from the borrow pits and preserved for their future reinstatement.

3.4.24 Excavation of material would take place, ensuring an unsaturated zone of at least 2m is maintained above the groundwater level. The maximum depth of excavation is likely to be to:

- approximately 5m AoD in parameter zones C6 and C7; and
- approximately 9m AoD in parameter zone C5.

3.4.25 Engineered drainage will manage surface water run-off and contaminants, such as suspended solids, and protect groundwater.

3.4.26 Works would continue on the borrow pits in Phase 2.

vi. *Temporary construction area:* Realignment of Lover's Lane and relocation of B1122 junction

3.4.27 To provide the necessary space between the proposed level crossing, as seen in **Chapter 2, Volume 9** of the **ES** (Doc Ref. 6.3), and the junction between the B1122 (Abbey Road) and Lover's Lane, this junction would be permanently relocated approximately 100m to the south of its existing position to facilitate development of the rail extension route, as shown on **Figure 2.2.2** of **Volume 2** of the **First ES Addendum**. This relocation requires Lover's Lane to be permanently realigned for a length of approximately 200m and would improve visibility at the B1122 junction for all road users. A crossing point would be provided over Lover's Lane from the northern field of Aldhurst Farm into the arable field to the north. A new route would then pass through an existing field, parallel to the field boundary, towards Kenton Hills. It would then join the existing Bridleway 19 route. The new permanent route and crossing point would be made available for pedestrians in the construction phase once the entrance to the main development site from the B1122 is in place and the number of HGVs using the early years' access is reduced, approximately two years post commencement of construction works.

3.4.28 The realignment of Lover's Lane and relocation of the B1122 junction proposed development would be built off-line, with the exception of tie-ins. A new right turn lane would also be provided to the Leiston Household Waste Recycling Centre. The road would be designed and constructed in accordance with Design Manual for Roads and Bridges technical standards.

3.4.29 The construction sequence would broadly follow the steps as below:

- Preparatory works: site set up and clearance including trees and hedgerows; erection of temporary fencing on land required for construction.
- Construction works: earthworks, road construction and surfacing, utility and drainage installation, construction of kerbs and footways, road signs and marking, road lighting and landscaping.

3.4.30 Areas of vegetation clearance and retention are shown on **Figures 2.2.4** and **2.2.5** of **Volume 2** of the **Second ES Addendum.**

3.4.31 An earth bund and vegetated retaining structure would be provided.

3.4.32 A new mammal culvert would be provided in close proximity to the existing culvert at Lover's Lane north of Leiston Recycling Centre. It would be designed with features to encourage use by mammals including otters and water voles to improve connectivity between the Sizewell Marshes SSSI and Aldhurst Farm. Otter fencing would also be installed to guide animals to the culvert.

b) Temporary construction area: Phase 2

i. *Temporary construction area:* Site entrance hub developed and operational

3.4.33 The main development site would be arranged as a secure construction site with controls on the people and materials entering and leaving the site.

3.4.34 The site entrance hub would be located east of the new roundabout off the B1122, west of Upper Abbey Farm and south of the Accommodation Campus. This area would be the location of several temporary site facilities including:

- main site offices and induction facilities;
- site welfare and canteen;

- bus and car parking areas;
- freight areas; and
- people and vehicle security facilities.

3.4.35 The on-site car park would have space for approximately 1,000 cars, rising from approximately 300 spaces in Phase 1, plus parking spaces for buses. Electric vehicle charging points would be provided where practicable given the temporary nature of the development.

ii. *Temporary construction area:* Vehicular accesses onto the B1122 and Lover's Lane

3.4.36 The TCA would be accessed principally via a new roundabout to be located on the existing B1122, approximately at the site of the existing junction with Eastbridge Road. All workers and most construction materials travelling by road would access the temporary construction area via this roundabout.

3.4.37 During the construction phase, the roundabout would have five arms, clockwise from the north as follows:

- B1122 north;
- Eastbridge Road;
- TCA access for buses, cars and cyclists, with an adjacent footway for pedestrians;
- TCA access for HGVs; and
- B1122 south.

3.4.38 The roundabout would include an over-runnable strip in the centre to allow AILs to drive across the centre of the roundabout and into the HGV entrance. The roundabout would be largely constructed offline, avoiding the need for long-term temporary road closures or the diversion of the B1122 in this location. The fifth arm into the temporary construction area would be removed at the end of the construction phase.

3.4.39 A secondary vehicular access road would be required to connect the main development site to LEEIE via Lover's Lane. This would be by means of a new priority junction on the northern side of Lover's Lane, a short distance west of Kenton Hills car park. This is required to facilitate the early delivery of materials into the main development site from LEEIE by HGV, generally before the roundabout is complete and after a SSSI crossing has been

established. This access would also serve as an emergency access point in the event of an obstruction at the main development site entrance. Some permanent realignment to the existing highway would be required to ensure safe operation of the junction.

iii. *Temporary construction area:* Realignment of Eastbridge Road

3.4.40 As part of the realignment of Eastbridge Road, a new shared footway and cycleway would be created alongside it to provide an off-road connection to Eastbridge. There would also be a Pegasus crossing on the northern B1122 arm, and another one on the Eastbridge Road arm a short distance north of the roundabout, to enable pedestrians, cyclists and equestrians to safely travel between the two sections of the diverted Bridleway 19. Further details are set out in **Volume 2, Chapter 15, Appendix 15I** of the **ES**.

iv. *Temporary construction area:* Excavation and backfilling of borrow pits

3.4.41 Once the borrow pit has been excavated, it would be prepared for backfilling with material from the main platform excavation.

3.4.42 Materials such as alluvium, peat and clay, used for the borrow pit backfilling, are very soft materials. Whilst the alluvium would be pre-drained as much as possible during excavation from the main platform, the material would remain very wet and soft and constrains the methods of placement. Material would therefore be placed within the borrow pit and then treated if necessary, by lime or suitable other agent, during placement.

3.4.43 Once the borrow pit has been backfilled and after settlement it has the capacity to act as a stockpile. In order to limit surcharge accelerating the rate at which leachate is released to the groundwater and ensure ground stability, the stockpile height would be limited to 5m above existing ground level.

v. *Temporary construction area:* Stockpiling of excavated materials continues

3.4.44 The construction of Sizewell C requires deep excavations on the main platform as set out above. This generates significant quantities of excavated spoil, as well as a need to import backfill material, all of which would require stockpiling at various periods during construction. The main locations of the stockpiles are shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). Further contextual information on the management of materials is set out in **Appendix 3B Volume 2** of the **ES** (Doc Ref 6.3) and to **Volume 3** of the **First ES Addendum**.

vi. *Temporary construction area:* Temporary railway track and associated infrastructure

3.4.45 The rail extension route would enter the main development site at the approximate location of the existing B1122 / Lover's Lane junction. The route would cross the B1122 by means of a level crossing and would continue east into the main development site approximately 2.7 kilometres to its terminus. The extension would be constructed in this phase and is shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 6.14).

3.4.46 Rail development within the main development site would comprise the terminus of the rail extension route and three railway tracks, including a terminal facility for offloading goods, railway sidings and a passing loop for locomotives.

3.4.47 The route would be constructed in three principal stages:

- Preparatory works: erection of temporary worksite fencing and controls.
- Earthworks: construction of the earthworks to support the track-form.
- Track and signal installation and upgrade: installation and upgrade of the track and signalling infrastructure which would link the main development site to the existing Saxmundham to Leiston branch line and western section of the rail extension route.

3.4.48 A New Track Construction train would be deployed from the rail extension route and would lay sleepers, move rails into final position and clip the rail to sleepers. Following use of the New Track Construction train, Auto-ballast trains would be deployed to lay top-ballast.

3.4.49 Once the ballast has been dropped, a tamper train would be run over the section of newly ballasted rail to lift the rails and stabilise/compact the ballast. The process of dropping ballast would continue until the track is at its designated vertical alignment.

3.4.50 Upon completion of the ballasting phase a Stabiliser train would be run over the newly laid track to provide a final compaction of the ballast before the rail extension route becomes operational.

3.4.51 Where material delivered at night needs to be stockpiled, this would typically also occur at night and transferred to the main stockpile. This may comprise approximately 50 articulated truck movements per night.

vii. Temporary construction area: Temporary facilities

3.4.52 Land is required to accommodate the range of activities needed to build the power station and the contractors who would perform them. To maximise logistical efficiency, the contractors' compound areas would be located as close to the main platform as practicable, as shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5).

3.4.53 The contractors' compound areas would be prepared as level platforms. Surface water drainage would be via the construction drainage systems installed (see drainage strategy section later in this document for details).

3.4.54 Part of the temporary construction area would be designated for common user facilities, as shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5):

- approximately six concrete batching plants;
- access and storage areas;
- logistical facilities, including waste handling areas;
- water treatment plants and water pumping stations;
- fabrication areas;
- pre-cast concrete production areas; and
- railway sidings and associated infrastructure, including storage area for aggregates and other materials.

3.4.55 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

viii. *Temporary construction area:* Accommodation campus and associated infrastructure constructed and operational

3.4.56 SZC Co. would construct an Accommodation Campus on the TCA to reduce the commuting distance for a core part of the workforce.

3.4.57 The proposed on-site Accommodation Campus would provide accommodation for up to 2,400 workers and facilities, as shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). The Accommodation Campus would comprise:

- 3-storey and 4-storey residential buildings placed in a broadly east–west orientation and providing up to 2,400 bed spaces;
- non-residential welfare, administration and amenity facilities, including: a 2-storey recreation building with a restaurant, kitchen, two bars, gym, multi-functional room, prayer / quiet room, plant and services; and a two storey reception building, incorporating administration /management space and a medical facility;
- 300 surface car parking spaces and a covered accommodation campus multi-storey car park, providing approximately 1,300 car parking spaces;
- provision of approximately 60 disabled car parking spaces, 120 motorbike spaces, 120 pedal cycle spaces, plus a drop-off and pick-up area;
- plant associated with the operation of the accommodation campus;
- access roads and footpaths;
- security office;
- access to the temporary construction area; and
- drainage and landscaping features, including recreational areas.

3.4.58 Design principles for the Accommodation Campus are set out in the **Sizewell C Main Development Site Design and Access Statement** (Doc Ref. 8.1).

3.4.59 Heat and power would be provided to the Accommodation Campus in one of two ways:

- Electricity via a direct connection to the construction electricity supply cable (as described below) and heating via air source heat pumps, located on the roof of all Accommodation Campus buildings. Air source heat pumps would be approximately 2m tall and 2m wide. A pump is likely to be needed for approximately every 20 rooms on the campus, with each pump providing 0.5kW of electricity.
- A combined heat and power (CHP) plant. The CHP plant building would have a thermal output of approximately 1,900kW and electrical output of approximately 1,700kW. The building would be approximately 10m in height and require a CHP stack, which would be approximately 4m above the building roof height.

ix. *Temporary construction area:* Kenton Hills car park upgraded

3.4.60 The existing car park serving Kenton Hills would be improved to provide up to 15 additional parking spaces and selective vegetation would be removed to make it less enclosed. The car park surfacing and the access road to it would be improved, and signage would be enhanced by replacing existing wayfinding and information boards adjacent to the car park and providing a sign on Lover's Lane promoting the parking and walking facilities.

x. Temporary construction area: Desalination plant relocation

3.4.61 It is assumed that the desalination plant is relocated to the Temporary Construction Area in Phase 2, in the event that the permanent transfer main is not operational by this time. The plant will be upgraded through modular additions to be capable of producing 4,000m3 of potable water per day.

3.4.62 The original pipework into the Main Platform would be re-routed and extended to the Temporary Construction Area across the SSSI Crossing (above the soffit level of the bridge along the proposed service corridor). No change to the intake and outfall infrastructure would be necessary as a result of the relocation. It is assumed that the desalination plant will be powered by the electricity main post-relocation to the Temporary Construction Area.

c) Temporary construction area: Phases 3 and 4

3.4.63 During phases 3 and 4, the TCA would be generally fully established and in use, with full operation including use of the batching plants, compounds, storage areas, prefabrication areas, rail infrastructure and access roads for moving materials.

d) Temporary construction area: Phase 5

i. *Temporary construction area:* Restoration of the temporary construction area

3.4.64 Following completion of the construction phase, temporary construction facilities would be removed and existing arable land in the temporary construction area would be predominantly restored as Suffolk Sandlings habitat, comprising acid grassland and heathland. Removal of construction facilities would typically be the reverse operations of Phases 1 and 2. Remaining earth and topsoil would be removed from the stockpiles and profiled across the TCA. Once established, this landscape-scale habitat creation approach would replace existing intensively managed arable farmland with habitats of greater biodiversity value and would generally increase habitat connectivity. Further details are set out in the

Outline Landscape and Ecological Management Plan (oLEMP) (Doc Ref. 8.2).

3.4.65 Works would include restoring and making safe temporary work sites, including removal of temporary hardstanding areas, temporary structures and buildings (including the Accommodation Campus), temporary rail infrastructure, temporary water resource storage area and other temporary work.

3.4.66 Temporary facilities, plant, cranes, machinery and other temporary works would be required.

3.4.67 With the exception of early planting, planting within the TCA footprint would be undertaken in Phase 5. Early planting would take place where practicable.

ii. *Temporary construction area:* Construction of permanent buildings and structures

3.4.68 Permanent buildings and structures, as set out in **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14)**,** would typically be constructed as pre-fabricated steel-framed buildings, including basements and piling in some instances.

3.5 Land east of Eastlands Industrial Estate

3.5.1 Land to the east of Eastlands Industrial Estate (LEEIE), which includes the area to the north of Sizewell Halt and King George's Avenue, would be used to support construction on the main platform and TCA. This land is generally bounded to the north by Valley Road, to the east by Lover's Lane, to the south by Grimsey's Lane, and to the west by Eastlands Industrial Estate, as illustrated on **Figure 1.2** of **Chapter 1 Volume 1** of the **ES**.

3.5.2 **Table 3.8** sets out the parameters for construction activities on LEEIE. The table should be read in conjunction with the parameters shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5) and the following text. Existing ground levels are shown on **Figure 1.8**.

3.5.3 An indicative layout of LEEIE is shown on **Figure 2.2.3** of **Volume 2** of the **Second ES Addendum**.

Table 3.4: Maximum heights for construction activities on Land east of Eastlands Industrial Estate.

Construction Zone.	Explanation of Parameter.	Construction Zone Parameter (Max. Height).
Zone C12: Construction of LEEIE stockpile area.	Working envelope for a stockpile area.	21m AoD.
Zone C13: Construction of caravan site.	Working envelope for worker caravan site and associated infrastructure.	35m AoD.
Zone C14: Contractor areas to the north of railhead.	Working envelope for temporary buildings, temporary facilities, laydown/stockpile areas, vehicular parking/maintenance, freight management facility and a stockpile area.	35m AoD.
Zone C14: Contractor areas to the north of railhead – exceptional circumstances.	Working envelope for exceptional structures such as mobile cranes and tower cranes.	75m AoD.
Zone C15: Construction related areas and rail infrastructure.	Working envelope for a park and ride facility, vehicular parking/maintenance, logistics compound and rail infrastructure.	30m AoD.

a) Land East of Eastlands Industrial Estate: Phase 1

i. *LEEIE:* Establishment of construction area

3.5.4 Work would begin by securing the site through installation of security fencing and site clearance. Fencing would be combined with ecological protection measures, where necessary. Temporary drainage would be installed. Utilities would be diverted and archaeological mitigation works completed, as necessary.

3.5.5 Acoustic fences or landscaped bunds would be used where it is necessary to attenuate noise levels, which would be up to approximately 5m in height,

as shown on **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5). Boundary treatments are illustratively shown in **Appendix 3C** to the **ES**.

3.5.6 Site clearance would include topsoil strip and associated stockpiling, diversion of utilities and vegetation removal. Areas of vegetation clearance and retention are shown on **Figures 2.2.4 and 2.2.5** of **Volume 2** of the **Second ES Addendum**.

ii. *LEEIE:* Vehicular accesses onto Valley Road, Lover's Lane and King George's Avenue

3.5.7 New vehicular accesses would be provided onto Valley Road, Lover's Lane and King George's Avenue. This includes both temporary accesses into LEEIE and a permanent replacement farm access to land north of Valley Road. The junctions would be designed and constructed in accordance with the Design Manual for Roads and Bridges technical standards.

3.5.8 The vehicular accesses would be used by park and ride buses, cars using the park and ride and HGVs transferring construction materials between LEEIE and the temporary construction area. Workers accommodated in the caravans would also use the access onto Valley Road to drive to and from the caravan pitches.

3.5.9 HGVs would travel along Lover's Lane to access the secondary entrance to the temporary construction area. Prior to completion of the SSSI crossing, HGVs would access the main platform along Sizewell Gap via the existing Sizewell A and B access road.

3.5.10 Park and ride buses would travel along Lover's Lane and the B1122 to the site access roundabout.

iii. *LEEIE:* Creation and use of caravan park begins

3.5.11 Serviced pitches for up to 400 caravans would be created to provide accommodation to the construction workforce, starting prior to completion of the Accommodation Campus on the TCA. One car parking space per pitch would be available. Caravans shall not exceed 7m in length and 2.55m in width (including external elements).

3.5.12 This facility would continue to be offered throughout the construction phase, providing an option to workers not wishing to use the Accommodation Campus or private rental sector.

3.5.13 An average of one and a half workers per caravan is assumed, meaning a total of approximately 600 construction workers staying at this facility.

3.5.14 A private footpath for construction workers would be provided from the caravan park through the LEEIE during the construction phase, joining Valley Road opposite the existing footpath. This would allow construction workers from within the caravan park to walk to Leiston town centre safely.

iv. *LEEIE:* Development of rail and associated infrastructure

3.5.15 The rail extension into the LEEIE would comprise a single railway track with sidings and a passing loop for the locomotive. There would be no night-time deliveries through Leiston into the LEEIE by rail, as freight trains would be held on the Saxmundham to Leiston branch line overnight. The construction method would replicate that used for the rail extension in the temporary construction area and for the rail extension route.

v. *LEEIE:* Freight management facility and park & ride constructed and operational

3.5.16 Works for the creation of the park and ride and freight management facilities within the LEEIE would comprise:

- clearance of vegetation, removal of topsoil and levelling the site;
- laying of materials for parking areas and internal circulation routes;
- construction and fit out of temporary buildings, and installation of utilities; and
- construction of the final surface layer before road markings and signage are completed.

3.5.17 The park and ride facility would contain approximately 600 car parking spaces, 20 bus parking spaces and an associated terminal area. Electric vehicle charging points would be provided where practicable given the temporary nature of the development. Workers would be shuttled by minibus to the main platform. The park and ride facility would only be in use during the early years whilst the associated development sites and on-site parking are under construction.

3.5.18 The freight management facility would contain approximately 80 HGV parking spaces and would also only be used during Phase 1 as a HGV holding area, principally to regulate the flow of HGVs using the existing Sizewell A and B access road until the SSSI crossing is operational.

vi. *LEEIE:* Storage and stockpiling of materials begins

3.5.19 Bulk material delivered by rail, including aggregates for the concrete batching plant and imported material for use on the main platform, would be stockpiled in a central location within the LEEIE.

3.5.20 Non-bulk and containerised materials delivered by HGV that are not required for use immediately, would also be stockpiled in a central location within the LEEIE.

3.5.21 Topsoil from site clearance works would be stored in the north-east corner of LEEIE and sufficiently set-back from residential properties on Valley Road to prevent unacceptable impacts on the amenity of nearby residents.

vii. *LEEIE:* Logistics compound developed and operational

3.5.22 A logistics compound would be created to accommodate temporary buildings, facilities, plant, machinery and materials required to support construction.

b) Land East of Eastlands Industrial Estate: Phase 5

i. *LEEIE:* Restoration of the LEEIE

3.5.23 Following completion of the construction phase, temporary construction facilities would be removed and the LEEIE would be restored as indicated in the **Outline Landscape and Ecological Management Plan** (Doc. Ref. 8.2). Removal of the construction facilities would typically comprise Phase 1 activities in reverse. Works would include restoring and making safe temporary work sites, including removal of temporary hardstanding areas, temporary structures and buildings, temporary rail infrastructure and other temporary works.

3.6 Fen meadow compensation areas

3.6.1 Fen meadow habitat would be provided on the fen meadow compensation areas to compensate for the permanent loss of approximately 0.46 hectares (ha) of fen meadow habitat from within Sizewell Marshes SSSI, associated with the construction of the proposed development and the diversion of Sizewell drain.

3.6.2 The fen meadow compensation areas comprise three areas of land, one to the south of Benhall, one to the north of Pakenham and one to the east of Halesworth as shown on **Figure 1.4**, **Figure 1.5** and **Volume 2, Figure 2.2.26** of the **First ES Addendum**.

a) Fen meadow compensation areas: Phase 1

3.6.3 Works associated with the fen meadow compensation areas would commence at (or prior to) the outset of construction on the main development site and assumed to include:

- installation of water control structures, to maintain / manipulate water levels;
- removal of any existing field drains, to reverse historic patterns of drainage;
- limited and superficial excavation to reduce local ground levels, create low bunds and /or create minor surface watercourses to help distribute surface water;
- translocations of turfs from the fen meadow areas Sizewell Marshes SSSI, where subject to landtake; and
- limited planting of other locally sourced native species and use of appropriately sourced 'green hay' to accelerate colonisation by key fen meadow species.

3.6.4 The proposed works would maintain the existing alignment of the public right of way (E-491/003/0) that crosses the fen meadow compensation site at Benhall and are not expected to affect the use of this route.

3.7 Marsh harrier habitat improvement area (Westleton)

3.7.1 The conclusion of the main DCO **Shadow Habitats Regulation Assessment Report** (Doc Ref. 5.10) and the DCO **Shadow Habitats Regulation Assessment Volume 4 – Compensatory Measures Report** (Doc Ref. 5.10) is that the permanent habitat improvement area of 47.8ha that has been established, but is being further improved, at the northern edge of the EDF Energy Estate (UK grid reference: TM 46318 65222) would provide sufficient foraging to be regarded as appropriate compensation for the predicted 'loss of foraging' over the Sizewell Marshes SSSI, arising as a result of a barrier effect created by the temporary construction area. This effect is assessed within **Chapter 14** of **Volume 2** of the **ES** and also in the DCO **Shadow Habitats Regulation Assessment Report**.

3.7.2 However, if it is determined by the Secretary of State that additional marsh harrier habitats are required, then the marsh harrier habitat improvement area (Westleton) would be temporarily used to provide this. If this area is determined to be required, the works to be undertaken to improve the area for foraging marsh harriers would comprise:

- Cessation of arable cultivation, under a land 'set-aside' approach, with 'abandoned arable' being part of the habitat mosaic.
- A one-off sowing of a coarse grassland mix over part of the area to produce rough grassland.
- Annual sowing of broad game strips to attract flocks of small birds and increase small mammal numbers.
- Potential planting of additional hedgerows and areas of scrub.

3.7.3 The plough depths for any coarse grassland or game strip sowing would be no deeper that a standard ploughed cultivation for existing arable use and any machinery used would be typical farm machinery. Any existing field drainage and irrigation infrastructure would be retained in situ. There would be no use of fertilisers unless required locally for sown 'game strips'. In addition, the group of trees protected under the Tree Preservation Order (TPO) in the south-western corner of the site would be retained and tree protection fencing provided, if required to undertake the works.

3.7.4 At the end of the construction period for the power station, the land, if used, would be returned to arable use, as the marsh harriers would then have no impediment to foraging.

3.7.5 The proposed works would maintain the existing alignment of the public right of way (E-550/029/0) that crosses this site and are not expected to affect the use of this route.

a) Marsh harrier habitat improvement area: Phase 5

3.7.6 At the end of the construction phase, the areas would be returned to agricultural use.

3.8 Leiston off-site sports facilities land

3.8.1 The Leiston off-site sports facilities land is an area to the south of Alde Valley Academy and east of Leiston leisure centre, as shown on **Figure 1.3**. The facilities would be used during the construction stage as a shared outdoor sports facility for Alde Valley Academy, the local community and Sizewell C construction workers. Acoustic mitigation, such as specialist fencing, will be erected as required during the construction phase. The sports facilities would also be retained as a permanent development, as set out in **Appendix 2.2A Updated Description of Development** (Doc Ref. 6.14). The development will be delivered in general accordance with **Figure 2.12** of the ES.

3.8.2 Works associated with the Leiston off-site sports facilities include:

- Topsoil removal where necessary.
- Installation of a full size 3G pitch with a 10-foot perimeter rebound fence and 400-millimetre (mm) pile, rubber crumb surface suitable for football, non-contact rugby and hockey. The pitch would include regulation drainage run-off and would be flood lit.
- Relocation of existing unlit grass pitches with movable goals.
- Installation of two multi-use games area courts suitable for basketball, netball, tennis and football, each with permeable surfacing, a 10-foot perimeter rebound fence and floodlighting.

3.8.3 Once operational, the facilities would generally be in use by Alde Valley Academy during term-time weekdays and open to use by the construction workforce and local community from 16:00–22:00 on weekdays and during the weekend.

4 TYPICAL SITE-WIDE CONSTRUCTION ACTIVITIES

4.1 Construction activity

4.1.1 The construction parameter plan, shown at **Main Development Site Construction Parameter Plans** (Doc Ref. 2.5), identifies typical maximum parameter heights by zone for fixed plant, structures and buildings. The plan also identifies exceptional maximum parameter heights by zone for time-limited activities, such as the installation of a large crane for specific tasks.

4.1.2 The environmental assessment assumes that short-term construction activities may take place across the main development site as a whole for the specific purposes of realising the construction methodology. Such activity would typically comprise minor works using mobile plant up to approximately five metres above ground level.

4.2 Construction parking

4.2.1 Temporary parking will be provided within the main development site as set out in **Table 4-1**.

Table 4-1: Temporary parking facilities on the main development site

Temporary parking facility	Parameter Zone location	Number of spaces (maximum)	Predominant vehicle type	Operational period (construction phases 1-5)
Site entrance hub – surface parking	C9	300*	Cars and vans	Phase 1
LEEIE Freight Management Facility – surface parking	C14	80	HGVs	Phase 1
LEEIE Park & Ride facility – surface parking	C15	600* 20	Cars and vans Coaches	Phase 1
LEEIE Caravan Park – surface parking	C13	400*	Cars and vans	Phases 1-5
Site entrance hub – surface parking	C9	1,000 75	Cars and vans HGVs	Phases 2-5
Accommodation Campus – multi-storey car park	CA2	1,300	Cars and vans	Phases 2-5
Accommodation Campus – surface parking	CA3	300 120	Cars and vans Motorcycle	Phases 2-5
Accommodation Campus – surface cycle parking	CA1 and CA3	120	Pedal cycle	Phases 2-5
Accommodation Campus – blue badge surface parking	CA1	60	Cars and vans	Phases 2-5

* No more than 650 car and van parking spaces shall be provided in total on the Main Development site in Phase 1

4.3 Construction waste

4.3.1 Any contaminated material discovered during excavation would be removed and/or remediated in accordance with the updated **CoCP** (Doc Ref. 8.11A).

4.3.2 There would be a policy of waste reduction which would include reducing packaging material, consistent with the need for protection of sensitive items; re-use of items and recycling of remaining materials. This would be facilitated by the appointment of a site waste management contractor, who would consolidate the construction waste from the various construction and erection contractors at a dedicated on-site facility and take the accumulated waste to appropriate sorting and recycling facilities. Further details on the management of waste arising from the Sizewell C Project are provided in the **Waste Management Strategy** in **Appendix 8A** of **Volume 2** of the **ES** (Doc Ref. 6.3).

4.4 Lighting

4.4.1 Due to the dynamic nature of a construction site it is not practicable to set out every likely lighting level. The objectives are to:

- provide a safe working environment, meeting statutory requirements and standards;
- allow 24hr working (when required);
- provide site security lighting; and
- mitigate the impact of artificial lighting on the surrounding environment as far as reasonably practicable.

4.4.2 Further detail is set out in the **Lighting Management Plan** in **Appendix 2B Volume 2** of the **ES** (Doc Ref. 6.3).

4.5 Drainage

a) Surface water drainage

4.5.1 The site-wide surface water drainage philosophy would follow the conventional sustainable drainage techniques, typically moving from each stage to the next only when the current stage is deemed not practicable:

- Store rainwater for later use (e.g. rainwater harvesting).
- Use infiltration techniques (e.g. porous surfaces, swales, trenches).

- Attenuate rainwater in basins or open water features for gradual release.
- Attenuate rainwater by storing in tanks for gradual release through an outlet.
- Discharge rainwater direct into watercourse or sea.

4.5.2 There is a variability of ground water and strata across the main development site and as such the approach taken would vary.

4.5.3 Further details on the construction drainage system can be found in the **Outline Drainage Strategy** in **Appendix 2A** of **Volume 2** of the **ES** (Doc Ref. 6.3).

4.5.4 Details for the demand and supply of water during the construction stage are set out in **Appendix K** of the **Planning Statement** (Doc Ref. 8.4).

b) Land to the East of Eastlands Industrial Estate

4.5.5 The overarching strategy for the surface water run-off associated with the Land East of Eastland Industrial Estate is storage with infiltration where possible.

4.5.6 Storage would be used to balance runoff from the LEEIE with outfalls to watercourses at Greenfield Rates. Extreme storm runoff will be attenuated in an attenuation pond within the main development site to the east of the LEEIE and an attenuation pond in the northwest corner of the LEEIE site, before release to the environment through infiltration or discharged at greenfield runoff rate.

4.5.7 Further details can be found in the **Outline Drainage Strategy** in **Appendix 2A** of **Volume 2** of the **ES** (Doc Ref. 6.3).

c) Foul drainage

4.5.8 The outline foul drainage strategy provides conventional drainage through the steps / hierarchy presented below, moving from each stage to the next only when the current stage is deemed not practicable:

- Transfer flows to treatment works.
- Introduce package plant.
- Specialist low flow package plant.

- Tankering to works (Cess Pits).

4.5.9 Further details on the construction foul water drainage system can be found in the **Outline Drainage Strategy** in **Appendix 2A** of **Volume 2** of the **ES** (Doc Ref. 6.3).

4.6 Utilities

a) Construction electricity supply

4.6.1 The construction electricity supply requires a cable route from National Grid's Leiston substation to the proposed location of the construction electricity supply primary substation, as seen in **Volume 2**, **Figure 2.2.35** of the **First ES Addendum**. This provides an incoming electrical supply that would power the main development site during construction.

4.6.2 The route of the construction electricity supply is south from the proposed substation, along Lover's Lane and east onto Sandy Lane before passing direct to National Grid's Leiston substation.

4.6.3 The width of the working area required for excavation of trenches and installation of cable ducts east of Lover's Lane is approximately 25m. This allows for a 4m wide excavation, 6m wide vehicle access road, 10m wide spoil mound plus 2m safety clearance on each side to accommodate temporary fencing. In highways and other constrained areas this working area can be considerably reduced by removing all excavated spoil off-site for disposal.

4.6.4 Following installation of the ducts, the trench is backfilled and then the cables are pulled. Cables are typically delivered on drums in 500m lengths. An open excavation would therefore be required every 500m along the route to allow for cable joints to be installed. These works are likely to take up to nine months to complete.

b) Water supply

4.6.5 The principal supply of water for the Sizewell C Project will come from mains water, provided by Essex and Suffolk Water. This will be drawn from within the Blyth Water Resource Zone, the zone that includes Sizewell C.

4.6.6 The **Water Supply Strategy Update** appended in **Volume 3** of the **First ES Addendum** (Doc Ref. 6.14) provides further details on how the water requirements of the Sizewell C Project could be met.

4.6.7 SZC Co. has also retained the following water supply options for further consideration:

4.6.8 New water resource options

- Sizewell B effluent reuse
- Licence trading with local abstractors
- Flood Water Storage
- On-site non-potable water management options Use of dewatering water
- Rainwater harvesting.
- Re-using concrete wash water.
- Recycling tunnel boring machine water.
- Greywater reuse.
- Effluent reuse (Sizewell C construction site and Sizewell B).
- Use of water efficient fixtures and fittings.
- Use of other water efficient practices on site.

4.7 Rights of way

4.7.1 Rights of way would be subject to disruption and change as a result of construction. The strategy is set out below:

- Minimise as far as possible any physical disruption or any other reductions in amenity on existing PRoW, permissive footpaths, access land, promoted cycle routes and all other pre-existing linear and area access, on the coast and inland.
- Minimise as far as possible any reductions in connectivity in and around the development, especially north-south.
- In particular, minimise any reductions in accessibility and amenity to the Suffolk Coast Path, Sandlings Walk and the future England Coast Path.
- Comply with the legal requirements of the Equality Act 2010 and the Countryside and Rights of Way Act 2000 in terms of temporary access infrastructure and management, by ensuring that there are no physical

barriers to access without lawful authority and that reasonable adjustments are made to facilitate participation by all.

- Ensure that all new linear surfaces are easy to use.
- Minimise the need for temporary path closures and diversions, and where these are unavoidable, to provide and maintain alternative routes so as to reduce to a minimum any disruption or loss of amenity.
- Minimise road crossing points and, where unavoidable, to carry out relevant road safety audits and implement recommendations to ensure user safety.
- Apply and maintain best practice in terms of on-site signage and other information provision, and to enhance visitor enjoyment and safety.
- Justify, manage and agree temporary closures in advance and to publicise closures to members of the public, as required.

4.7.2 Further details are set out in the **Rights of Way and Access Strategy** in **Appendix 15I** of **Volume 2** of the **ES** (Doc Ref. 6.3).

4.7.3 In addition to this, **Volume 1** of the **First ES Addendum** assesses the environmental impacts of a crossing point and associated path which would be provided over Lover's Lane from the northern field of Aldhurst Farm into the arable field to the north. A new route would then pass through an existing field, parallel to the field boundary, towards Kenton Hills. It would then join the existing Bridleway 19 route, as shown in **Volume 2**, **Figure 2.2.32** of the **First ES Addendum**. The link would be designated as a bridleway once construction of the SZC Project is complete.